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GERMAN MEDICAL EXHIBIT.

BACTERIOLOGY AND EXPERIMENTAL THERAPEUTICS.

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In accordance with the general plan of the German medical educational exhibit, the bacteriology department is intended to give an idea of the methods of instruction in this special branch. Especially in bacteriology, however, do research and instruction proceed hand in hand. The same apparatus and methods are employed both in research and instruction. Therefore, an exhibit which shows the methods of bacteriological instruction, will represent at the same time the course and the results of research. Considering the extent of the science which deals with the germs of infectious diseases, it was impossible, within the limits of this exhibit, to present a complete and comprehensive view of this branch of scientific study. The chief aim and object in bringing together this bacteriological exhibit was to show the progress made in this science during the last decade, *i. e.*, since the Chicago Exposition. But this progress has been so manifold in its nature that only a general idea of it could be given owing to the limited space at our disposal.

Whilst bacteriology down to the beginning of the nineties of the nineteenth century was a science which concerned itself principally with the origin and mode of propagation of infectious diseases, it turned, from that time on, to the investigation of such important questions as how to protect individuals; in short, it aimed at preventing these diseases. The years just after 1893 mark this important turning point in the development of bacteriology. For it was about this time that serum therapy, founded by Behring, was introduced into medical practice; from this time, too, date the principal works which aimed at attaining actual immunity of men and animals against infectious diseases; and, finally, it was about this time that the doctrines and observations which Robert Koch and his disciples had originated during the fight against the cholera epidemic in Germany started the modern rational prophylactic campaigns against such diseases in the form in which such campaigns are carried on today, and in which they have been approved in international treaties by almost all civilized nations of the world. Further-

more, a number of germs, producing diseases in men and animals, were discovered, *e. g.*, the influenza bacillus, the bubonic plague bacillus, the dysentery bacillus, etc. The colonizing labors of the great civilized nations brought bacteriology in the course of the past decade face to face with the great problem of how to deal with and how to prevent tropic diseases, especially malaria. Here, too, great progress has to be recorded in the course of the last few years. The proof of the transmissibility of malaria by mosquitoes (discovered by Ross), the practical inferences for the prophylaxis of malaria drawn by Ross and Robert Koch from this discovery, the part that insects play as agents in the transference of blood parasites in other infectious diseases, *e. g.*, in Texas fever, (Theobald Smith), in Tse-tse disease (Bruce), are among the achievements of this last period. And if we add that the theory of that science, which concerns itself with those most delicate and complex phenomena occurring in the infected organs, has also to record many epoch-making discoveries (a place where Ehrlich's name is to be mentioned before all others), it becomes clear what a wide sphere of work and influence bacteriology has covered during the last decade.

The method adopted by the directors of the bacteriological exhibit in the idea of giving a picture of how students are introduced to all these results of scientific investigation, is as follows: every infectious disease is treated separately, just as in a bacteriological course of lectures.

The diseases and infectious germs represented in this exhibit are:

Tuberculosis, cholera, bubonic plague, leprosy, smallpox, hospital fever, enteric fever, paratyphus, coli bacteria, dysentery, malaria, syphilis, tetanus, meat poisoning, anthrax, streptococci diseases, staphylococci diseases, pneumococci, meningococci, gonococci, actinomycosis, influenza, sleeping disease, diphtheria, erysipelas in swine, contagion in swine and plague in swine, hydrophobia, glanders, bacteriology of eye diseases, diverse parasites.

Objects in connection with research in immunity therapeutics and serum therapeutics are exhibited separately. The exhibit of various infectious diseases is arranged on the principle that the observer should first examine the germ and afterwards the disease produced by it. For this reason, where the question concerns microscopic life growing upon artificial soil, the pure cultures on the various fostering soils and the poison of the bacteria are shown. The appearance of these cultures under the microscope is shown by the micro-photograms exhibited to illustrate each infectious disease and the wall diagrams drawn from original preparations. Moreover, the harmful effect of these micro-organisms upon the human or animal body is illustrated partly by pathological specimens preserved in their natural colors and partly by pictures. The diagnosis of each species of bacteria is demonstrated by the exhibition of the form of growth peculiar to them, of their especial chemical changes and of various experiments in agglutination.

A series of exhibited pamphlets serves to represent the preventive measures to be taken in epidemics and the specific treatment of the same.

In this connection numerous papers have been placed by the Kaiserliche Gesundheitsamt (Royal Board of Health) at the disposal of those interested. Pamphlets and other papers written in language intelligible to the masses show how the German Empire endeavors to make hygienic knowledge a common possession of the people.

The portable laboratories exhibited and the articles used in obtaining material for bacteriological examination (exhibited by the hygienic institutes in Breslau and Halle and the Institute for Experimental Therapeutics in Frankfort on the Main) represent the change which, under the direction of Robert Koch, has taken place in the last decade in the methods of combating epidemics. The bacteriological expert has taken the place of the former military cordons and quarantine stations, that interfered so with trade and traffic. He is sent with a portable laboratory to the place threatened by the epidemic, and there fights the plague with the arms of science without public traffic being seriously inconvenienced. Photograms show the nature of his work. Numerous wall maps and statistical objects show the effect research has had upon the decrease in the frequency of disease and mortality. It was intended that the observer should see before him, as does the student at the lecture, the origin, form, means of recognition and prevention, and the treatment of every infectious disease. In the special department for immunity therapeutics and serum therapeutics the observer becomes acquainted before all with the intimate qualities of the blood serum of immunized men and cattle upon which the specific treatment of infectious diseases is at present chiefly based. When a human being or an animal is immunized against an infectious disease new substances make their appearance in his blood, especially in the blood serum, and these new substances will protect another individual against the germ of infection with which the animal from which the blood was taken was previously inoculated. This protection is specific, *i. e.*, it operates only against that form of micro-organism with which the immunization was effected. Now, in every pure culture we distinguish two component parts, firstly, the living micro-organisms, and, secondly, their poisons, *i. e.*, the chemical substances existing in them which are inanimate and poisonous. Therefore, a serum can operate defensively, firstly, in that it contains within itself an antidote against the bacteria poison in question, or, secondly, by killing the living bacteria in the body. Accordingly, we distinguish antitoxic serums, *e. g.*, diphtheria and tetanus serums, and, secondly, bactericidic serums, *e. g.*, typhoid fever and cholera serums. The way in which these two serums take effect is here demonstrated. As an example of an antitoxic serum, tetanus serum has been chosen. The bactericidic bacteria-killing quality of an immunizing serum is demonstrated in a special series of experiments. Besides

these antitoxic and bactericidic matters, a third series of substances arises in the serum of an animal which has been immunized against certain infectious germs. These substances roll the bacteria—which, under normal conditions, lie separate from one another and thus cloud a liquid evenly throughout—into piles perceptible to the eye. These are the agglutinines. They, too, are specific, *i. e.*, they work only upon that form of bacteria against which the animal was immunized; they can, therefore, be employed as a means by which to recognize a special form of bacteria or in diagnosing human diseases. (Sero-diagnosis.) We see the effect produced by them in a great number of experiments which are exhibited.

Ehrlich's receptor theory (Seitenkettentheorie), the aim of which is to throw light on the nature, the origin and method of operation of the substances mentioned, is demonstrated in a series of wall maps. These show how, according to Ehrlich, the active substances found in the serum become detached from certain organs and pass into the blood. Their work here is to unite, in the blood itself, with the poison in the bacteria or with the bacteria themselves, arresting them, and preventing them from entering the system and there producing disease. According to Ehrlich, therefore, the protective process of these substances is as follows: Outposts, as it were, are set on guard in the blood, and fall upon the enemy, *i. e.*, the infectious matter, and prevent it from making its way from the blood into the organs of the body.

Considering the great importance which serum treatment has assumed in medical work, the government was obliged to supervise the preparation of serum, and see that those sera intended for use on human beings should possess the necessary standard of purity when offered for sale. In the German empire, accordingly, all the serums for human diseases have been brought under state supervision. There are numerous specimens on exhibit which show the manner in which this supervision is carried out by the Institute for Experimental Therapeutics in Frankfort on the Main (specially appointed for this work), and how the quality of a serum is determined.

A collection of samples of all the serums produced in German factories—those for prevention, those for cure and others—and of the bacteria preparations for prophylactic inoculation, gives a general idea of the wide scope of this industry (started only in the last decennium), an industry most closely connected with scientific research.

A further series of exhibits shows that these researches in immunity have yielded the most important results, not only for the combating of infectious diseases, but also for other practical purposes. They show how, by means of the serum of specially treated animals, one can ascertain, even of small particles of tissue, whether they are from a human or an animal body, a fact which has become of considerable importance in the wide field of legal medicine.

AMERICAN PATHOLOGICAL EXHIBIT.

By W. T. Eckley, M. D., of Chicago.

One of the features of the Louisiana Purchase Exposition in St. Louis, in the section of charities and correction of the department of social economy, was to interest the medical profession of America in the installation of an exhibit in the Educational Building which should be representative of the best in this country along the line of pathology. To further this great undertaking and give the same substantial moral, professional and financial support, the then incumbent President of the American Medical Association, Dr. Frank Billings, of Chicago, was requested to appoint an exhibit committee, to consist of both executive and district members. In response to this request, Dr. Billings appointed the following:

Executive Members.—Dr. Ludwig Hektoen, Chicago; Dr. A. J. Ochsner, Chicago; Dr. W. A. Evans, Chicago; Dr. W. T. Eckley, Chicago; Dr. L. F. Barker, Chicago.

District Members.—Dr. J. N. Hurty, World's Fair; Dr. Frank P. Wynn, Indianapolis; Dr. Max Herzog, Philippine Islands; Dr. V. C. Vaughan, Ann Arbor; Dr. W. W. Keen, Philadelphia; Dr. J. S. Billings, Jr., New York; Dr. Philip King Brown, San Francisco; Dr. Ellsworth Smith, Jr., St. Louis; Dr. Allan J. Smith, Philadelphia; Dr. F. W. Parham, New Orleans; Dr. R. M. O'Reilly, U. S. Surgeon-General.

The Executive Committee meetings were held in Chicago at the call of the chairman, Dr. Ludwig Hektoen. The committee was met on two occasions by Mr. Alvin E. Pope, of St. Louis, superintendent of the section of charities and correction; Dr. Frank P. Wynn, whom every physician in America knows, not only for professional worth and prominence, but especially for the masterly manner in which he has conducted the pathologic exhibit for the American Medical Association in its annual meetings.

The American Medical Association met in Atlantic City, and with it an unusually fine pathologic exhibit under the installation of Dr. Wynn, it being the tacit understanding that this Atlantic City exhibit was to be shipped to St. Louis for installation for the season as one of the leading scientific attractions of the Exposition. Now, right here, trouble of a monetary nature began to brew between the colleges possessing the exhibits and the promoters of the Louisiana Purchase Exposition. Who was to pay transportation on the exhibits from Atlantic City to St. Louis? "Not I," said the Exposition; "Not we," said the colleges. The result was, the Atlantic City pathologic exhibit came and went as in many previous years, unmindful of a world's fair. On the other hand, articles exhibited in St. Louis were not installed in Atlantic

City. Sickness prevented Dr. Wynn's presence, and the writer was appointed in his stead to install exhibits.

It is no part of the present article to comment on the circumstances surrounding the Atlantic City exhibit further than to state the bare facts which deprived the Louisiana Purchase Exposition of one of the most attractive and useful exhibits. There were other features deserving of mention which conspired to reduce the number of exhibits. One was the unwillingness on the part of some legislatures to appropriate funds for medical purposes. Another was averseness on the part of some colleges to subject their collections of years to the vicissitudes of climate, transportation and vandalism.

Compared to what it might have been, the pathologic exhibit in the Louisiana Purchase Exposition was a mere infant in size. On the other hand, had satisfactory arrangements for transportation of the Atlantic City exhibit been made, where could room have been secured for it? This possibility suggests the proper solution of the unwillingness of the Exposition to pay freight and express for exhibitors. The Educational Building quite early became inadequate to fill orders for space-units, and for this reason the court became an extensive exhibit space, destructive as this surrender was to the architectural beauty of the Palace of Education.

The space allotted to the American Medical Association for its exhibit was the south balcony of the educational building. The balcony overlooks festival hill and the cascades, is well ventilated, enjoys abundant skylight and is in every way an ideal location.

The majority of our readers have doubtless visited the south balcony and are familiar with its attractions. I have given a passing sketch of the official history of the exhibit for the benefit of those unfamiliar with it. It was previously intimated that the pathologic exhibit was small. This is comparative smallness only—small in comparison with America's collective pathology—small in comparison with the liberal arts or varied industries. Small, however, as it was comparatively, it was many times too great for the time usually allotted to seeing the fair by the average visitor. To enumerate seriatim and in detail every instructive feature exhibited would transcend the legitimate limits of this communication; hence I deem it expedient to mention (1) those represented in the balcony; (2) to call attention to those features of the collective exhibit which have the greatest practical bearing on the medical profession and group them with reference to disease or organs.

The following exhibitors were represented: The St. Louis pathologic exhibit consisting of (1) the medical department of St. Louis University, medical department of Washington University, city health department St. Louis. Private individuals whose names do not appear in the official announcement of the St. Louis pathologic exhibit; (2) the Creighton Medical College of Omaha; (3) McGill University, Canada; (4)

Dr. James Moores Ball, St. Louis; (5) Chas. Truax, Green & Co., Chicago; (6) Dr. Gustav Fuetterer, Chicago; (7) Kny-Sherrer, New York; (8) W. R. Grady, Chicago; (9) Seabury and Johnston, New York; (10) Van Horn & Co. New York; (11) College of Dentistry University of Chicago; (12) College of Physicians and Surgeons University of Illinois, Chicago; (13) P. Blakiston's Son & Co.; (14) Lea Bros. & Co.; (15) Colegrove; (16) D. Appleton & Co.; (17) Chicago Medical Book Co.; (18) Cleveland Press; (19) Longmans, Green & Co., London.

From the view-point of the practical practitioner of general and special medicine and surgery, a critical resume of the exhibit of the American Medical Association resolves itself to (*a*) methods of preparation of specimens; (*b*) value to medical men of specimens exhibited; (*c*) teaching or educational usefulness of special importance.

The popular methods of preserving both anatomic and pathological specimens are, and doubtless for some time to come will be, those of Kaiserling. When preservation of color in a given gross specimen is subsidiary to that of anatomic relations the use of Keiler's formula furnishes excellent results. This is more particularly true of large pathologic or anatomical specimens in which from the nature of their importance it may be necessary to have them handled much by students for months or even years. Small specimens in gelatin, mounted in Petri dishes or suitable glass jars are handy, neat, attractive and ever ready for use.

The arrangement of specimens was such that the busy medical man in minimal time could review tuberculosis, leprosy, nephritis, cardiac lesions, carcinoma, and, in fact, nearly every disease to which flesh is heir. In osteology there was an unusually rare collection of normal, abnormal and pathological bones. Every surgical area of the body was to be studied on dissected specimens in which the bodies from which the specimens were derived had previously been embalmed with zinc chloride, mercury bichloride, arsenic or formalin, thus giving opportunity for comparison of the four most popular dissecting room preservative agents. Were one bacteriologically inclined—and where is the diagnostician who is not, however slight in many cases the *inclination* may be, here were beautifully prepared culture media a la standard, side by side with about all the authenticated bacilli, micrococci and staphylococci known to the diagnostician's art.

The exhibit of Dr. James Moores Ball, consisting of twenty-five jars, each containing a bisected, diseased or injured eye, was instructive from an artistic as well as from an ophthalmologic standpoint.

The Washington University had many valuable specimens, among which of special interest may be mentioned a series of leprous hands. Dr. Tuholske's specimen of extra-uterine pregnancy with adhesions of the placental mass to the under surface of the liver is, as stated on the label, the only specimen of the kind in the world.

It would be indeed difficult to duplicate either in variety of specimens, terse description or arrangement for the greatest possible teaching potency, a collection of skulls illustrating wounds, syphilis, osteoma and indices exhibited by Dr. Terry.

The exhibit of histologic and pathologic work of the students of Creighton Medical College was pronounced excellent by many competent judges in these respective departments of teaching, and many a teacher might very profitably emulate Dr. Foot's example with advantage to his classes and the profession in general.

The collection of fœtal monsters escaped no one's inspection. The specimens are valuable, especially in the wide range of departure from the ordinary things present. The collective freaks of this kind in America would doubtless make an impressive spectacle; the number, however, in a single state is comparatively small. Why could not by concerted action all such in this country be gathered to gether andbe placed in some one's hands for exhibition annually at the American Medical Association? In this manner every physician might have an opportunity to see a class of specimens not otherwise accessible.

The only work along lines of investigation and original research were by Dr. Fuetterer, of Chicago, on production of genuine epithelial metaplasia artificially produced in the stomach. For a full report the reader is referred to the *Journal of the American Medical Association*, October 25, 1903.

McGill's specimens were entirely pathologic, and in point of artistic mountings and variety first-class.

The bacteriologic exhibit of the department of health of St. Louis was practical, comprehensive and covers in a most masterly manner a field second to none in medicine.

The College of Physicians and Surgeons of Chicago had a large collection, both pathologic and anatomic specimens, mostly work of the students of the school and of post-graduate students. Among some of the most interesting and instructive may be noted the pelvic, head and corrosion dissections.

In its totality the specimens presented represented very thoroughly the museum and working specimen found in American colleges. Until we have a uniformity of retainers we may expect just what we have at present—fine specimens in inferior jars. After all, the scientist in his love for the beautiful in a pathologic specimen loses sight of the æsthetic side of the subject as revealed by the mere retainer. As, however, appearance oft doth make the man so in medicine, we are fast approaching a time when our museum habilaments must rightfully count for more than at present.

SURGICAL LESSONS FROM THE EXPOSITION.

By Willard Bartlett, A. M., M. D., of St. Louis.

Now that the Louisiana Purchase Exposition is but a memory, it is quite natural, with the picture still so fresh in mind, for the observer to review in retrospect the pleasant and profitable gleanings of the past seven months. First and foremost, each turns as a matter of course to the field of endeavor which is particularly his own, the one in which his interest is peculiarly centered. The arts and the sciences were so liberally represented, that the average visitor was able to indulge his especial taste to the utmost. The teacher and practitioner of medicine were in their element if only fortunate enough to locate the exhibits of special interest to them. As far as surgery alone is concerned, it cannot be said that the quantity of material was unlimited, though the quality was above reproach.

In the world of music, it is usually held that the composer takes first rank, the teacher second and the performer third, as far as the value of their respective services to mankind are concerned; and it would seem that in so far an analogy between the study of music and the study of surgery might be drawn. Thus the original worker, the teacher of surgery and the operating surgeon would, in the order named, rank as benefactors of their fellow-men. Recognition of the value of the two first named, as well as the impossibility of illustrating the third division of surgery, made it imperative that the lessons of the Exposition should be to a great extent those of teaching methods and to a lesser degree those of original investigation. The history of surgery was interestingly touched upon in isolated cases, though apparently no systematic attempt was made to depict in sequence the advances which have made the surgery of today what it is.

Germany and Japan co-operated with our own country in making the surgical aspect of the "Fair" a thing of interest and worthy to be remembered. The first mentioned nation, with the enviable reputation of having the most extensive and valuable general exhibit of any of the foreign governments, made a display of surgical teaching methods that was fully in keeping. In fact the prestige of the German university was upheld in no uncertain way.

The display of a model operating room, with an aseptic operation in progress, was one of those which attracted liberal attention in the U. S. Government Building. Another of the few exhibits from which might be derived an idea of the arrangement of an operating room, as well as of the aseptic paraphernalia, was that of the Johns Hopkins training school for nurses. There was much profit to be gained along the same line by a study of the model hospital plans exhibited by Dr. Ochsner, of Chicago. Having been at the head of a large surgical hospital for many

years, he was, as a matter of course, in a good position to embody in his proposition many ideas which his experience had shown to be essential to the best performance of the work of today.

An instructive contribution to the surgery of the cranium is found in the St. Louis pathological exhibit. The various traumatic affections of the skull, as well as many of the diseases of its bones are faithfully depicted. Under the first head are shown the effects of blunt violence, bullet wounds, saber cuts, etc., while under the second tumors of the bone, various inflammatory lesions, micro-cephalus and hydro-cephalus, together with many other stigmata of semi-surgical interest, are to be found. Among the specimens which are more than usually instructive, are several which show how large bone defects of the skull tend to heal, viz., by bridging of the defect with an extremely firm, heavy layer of non-osseous connective tissue. Evidently this was sufficient in the examples shown to prevent any tendency to hernia cerebri, since there is no outward bulging in any one of them.

While the display of the university of Illinois, on the same balcony as the last mentioned, deals really to all intents and purposes with anatomy as such, still there are many of Prof. Eckley's beautiful dissections which cannot fail to be of practical interest to the surgeon as well as to the general student of anatomy, which it will be admitted every medical man should be. The collection is so large as to embrace almost everything in the realm of human anatomy; hence any mention of individual subjects is superfluous.

In addition to her display of operating peraphernalia and surgical instruments, Japan showed one feature of historic as well as of practical interest to the surgeon. Reference is made to Prof. Kitisato's demonstrations, in the educational building, of the methods invented and used by him, in the well known work he did in establishing the etiology of certain specific infectious diseases. This display is carried out by using models and imitating the different steps in the experiments on animals which the famous author performed, showing the original instruments and illustrating the manner in which they were used.

Germany's exhibition of her methods of teaching medicine was easily superior to anything else of the sort at the "Fair," this being true both with regard to quantity as well as quality. It represented the systematic and concentrated effort of not only several of the German universities, but that of many of the German firms which are engaged in the manufacture of all the various apparatus and supplies used by student, teacher and practitioner. Of course, this feature added to the excellence and practical value of the exhibit as a whole, though it in a measure placed other educational showings at a disadvantage, for the simple reason that the average educator and manufacturer failed to pool their issues, although there is no good reason why they should not have done so, and

even if they had, there is still good reason for the belief that the German display would have still been first and foremost.

About one-fourth of the German medical display was given over to surgery, the following universities being represented: Berlin, Breslau, Kiel, Koenigsberg, Leipsic, and the hospital "zu Hamburg-Eppendorf," the two first named furnishing by far the greater portion of the displays, while the rest were represented to varying lesser degrees.

Germany chose to be represented by two of her university clinics, those of Berlin and Breslau, the first presided over by Bergmann and the second by Mikulicz. The exhibits of the two were arranged in separate but adjoining rooms, and it may be that a spirit of friendly rivalry was, in small part, responsible for the excellence of both. The endeavor was to illustrate as fully as possible the newest methods of teaching surgery in a German university, in which the sense of sight as well as that of hearing, is used to the fullest extent, in contrast to the old way of leaving the student to content himself with a mere description of symptoms as well as treatment. As an example of what is meant, it may be noted that the student in the Berlin clinic, sees in connection with the description of a tumor of the shoulder: 1, photograph of the patient with the tumor in situ; 2, radiograph showing, if possible, the origin of the growth; 3, specimen after exarticulation at the shoulder joint; 4, microscopic section through the mass. Of course, all of this is possible for a man who has seen the patient before, during, and after the operation. This surely represents about the highest development of surgical teaching, and is in sharp contrast to a mere description in a course of didactic lectures.

In the teaching of operative surgery at Bergmann's, considerable stress has been laid recently upon the value of models in this connection, hence we find a number of these colored models, of life-size, illustrating in series, the various steps in this or that operation. Removal of the tongue, radical cure of inguinal hernia, performance of gastrostomy and removal of the larynx, are some of those shown. This arrangement has the great advantage of being permanent, though, of course, it is something which would appeal to the beginner alone; however, it shows what an expensive and laborious preparation a German university considers justified, in supplementing a course of surgery on the cadaver.

In addition, there are shown from the Berlin clinic many microscopic drawings of superior quality, photographs of surgical diseases, and instructive radiographs without number. One interesting model shows an improved table or table-bed for the primary treatment of fractures under the direct inspection of the bones, which is afforded by the fluoroscope. Apparently little confidence is placed in the mere manual reposition of fractured and dislocated extremities, since there is shown a most elaborate apparatus for the application of constant traction in any

direction, while the lesion is under the constant control afforded by the "X-ray." Certainly little is left to chance, where it is possible to use such methods.

The "Mikulicz Room" is equally as interesting as that furnished by Bergmann, and may be truly said to bear even more strongly than the other the personal impress of the Breslau master. That is, the exhibits are along lines in which Mikulicz has made himself famous, viz.: Orthopedic surgery and the surgery of the abdomen. Here the older and well-known aids in teaching, charts, drawings, etc., have been entirely left out of consideration, and the newer methods alone considered, chief among them being the Roentgen photography and casts made from the living body. Of the latter, a large number are used, eleven different diseases of the knee being elucidated, showing in a striking manner how nearly alike in outward manifestation entirely different maladies of this member may be. The number, variety and value of these life-size casts can be appreciated when it is known that ten are on sarcoma femoris, three on tuberculosis genus, three more on the same subject, three more on the same subject with resection, five on arthropathic tabica genus, two more on the same subject, two on osteomyelitis femoris chronica, three on corpus liborum genus arthritis deformans, four on fractura patellæ and one on gonitis gonorrhoica. The fame of Prof. Mikulicz as an abdominal surgeon is even greater than that as an orthopedist, hence his casts representing abdominal operations attracted an unusual amount of interest. First came the eleven abdominal incisions which are used by Mikulicz for appproaching the various organs. Of greatest interest possible were the casts which represented the different steps of certain stomach operations, containiug a correct representation, as we are assured, of the master's hand covered by his famous "tricot" gloves, which, it must be admitted, have been replaced almost everywhere else by rubber gloves. We are shown a gastroenterostomy, which is done by an original method, the incision in the small intestine being as high as possible and across its axis. A pylorus resection by the first Billroth method, with the Breslau ideas of treating and connecting the stumps, next claims our attention. But most interesting and of greatest practical as well as historical value, are the models illustrating the removal of a tumor in the large intestine at two sittings. It will be remembered that Mikulicz made the contribution to surgery which enabled us to reduce the general mortality from 40 per cent. to 10 per cent. in the operative treatment of cancer of the colon, when he showed us that the operation should be done at two sittings instead of one. Since his original proposition the technique has been improved upon by others, still his original principle remains the same. The photographs and radiographs illustrating work done upon the œsophagus are sufficient to show what a place the Breslau clinic is for strikingly successful surgery. By means of the oesophagoscope four

dental plates were found and removed through the mouth, three pushed into the stomach and ejected through the rectum, to say nothing of the vast number of miscellaneous objects detected thus and removed by external cutting operation.

To one who is impressed by striking personalities, the contribution of the German Surgical Society (Deutsche Gesellschaft fuer Chirurgie) could not fail to be interesting. It consisted of the portraits of thirty of its most distinguished members, past and present, viz.: Langenbeck, Bergmann, Mikulicz, Koenig, Esmarch, Dieffenbech, Bramann, Busch, V. Bruns, Socin, Thiersch, Riedel, Volkmann, Kocher, P. Bruns, Bier, Kraske, Angerer, Simon, Madelung, Czerny, Kuester, Scheede, Schoenborn, Eiselsberg, Trendelenburg, Braun, Gussenbauer, Billroth and Bardeleben—a gallery of the men who have shaped the lives and in a large measure been responsible for the success of the younger generation of German surgeons, to say nothing of the multitudes from every land who have flocked to the Mecca of medical learning after exhausting the resources of their home schools and hospitals.

It is hardly possible that any one of us could have seen or known all of these stalwarts; in fact, it is much more likely that most of the medical men who viewed their features in portraits at the Fair, did so for the first time, at least as far as the majority of these noted teachers are concerned. For the man who has based his knowledge of our science upon "Billroth's Surgical Pathology," as the younger generations have been obliged to do, the sensation of gazing upon the master's features can have been none but a pleasurable one. Eislesberg, though a comparatively young man, Billroth's former pupil and assistant, cannot fail to be of interest to the surgeon on account of his goitre work, if for no other reason. Max. Scheede, who died all too young, as the years of usefulness of a German surgeon are counted—the man who deserted an immensely lucrative practice in Hamburg for the honor of a chair extended to him by the small university at Bonn—is best known to us, perhaps, on account of his pioneer investigation on the kidney. Prof. Czerny has always ranked pre-eminent as a teacher and operator, and it is due to his personal efforts that Heidelberg has for twenty-five years held the position which it today occupies in the surgical world. To Prof. Madelung we owe our earliest accurate knowledge of the echinococcus and its surgical aspects. His earlier years, spent in a teaching capacity at Rostock on the Baltic coast, furnished him with an ample material which was peculiarly fitted to his study. If for no other reason, the face of Prof. Simon would attract attention because he was the first to extirpate the human kidney. Prof. Kraske is generally acknowledged to have been the pioneer whose investigations on the surgery of cancer of the rectum marked the beginning from which the present methods in the treatment of that subject have been developed. The name of Prof. Bier is inseparably connected with the treatment of joint and other in-

flammatory affections by hyperemia. The name of Kocher stands so high in the literature of surgery that it seems almost superfluous to mention any of the many original investigations accredited to its possessor. A knowledge that he is now performing his third thousand goitre operations, and an introduction to his work on the "Technique," ought to be sufficient for a man who had never heard the name. As long as skin grafting is performed, the name of Thiersch will be inseparably connected with it. To Esmarch we owe the knowledge which enables us to operate under artificial local anemia. Prof. Koenig, who has just resigned his professorship of surgery in Berlin and removed to the beautiful little university town of Jena to spend his remaining days, did more than any other one man to elucidate the subject of joint tuberculosis and to found its rational surgical treatment. The leading European abdominal operator of today is undoubtedly Prof. Mikulicz, of Breslau, to say nothing of his striking originality in many other lines. Prof. Bergmann's many original studies on the surgery of the head need no detailed mention. He is at the same time, as the head of Royal University Clinic in Berlin, the greatest of all the European medical centers, perhaps the most visited surgeon in the world. The marble bust, which has the position of all honor, is that of grand old Langenbeck, that prince of operators, whose dexterity has never been equaled since his time—the surgeon whose technique, as regards speed, met the requirements of the period when the patient was strapped down because the blessing of anesthesia was unknown.

With the achievements of only half of them mentioned, is it then any wonder that Germany is proud to point to this galaxy of her illustrious sons, and that her representative surgical society sends them to our exposition, it may be to inspire some of those who behold them to emulate the example they have set.

THE GERMAN HYGIENIC EXHIBIT.

By Regierungsrath Dr. Breger.

IMPERIAL BOARD OF HEALTH, BERLIN, GERMANY.

The increasing success with which the principles of modern hygiene have been applied to practical life have led to its development from the region of pure theory into a powerful factor, influencing state administration in all its branches. Obedience to its laws has caused the recognition of the fact that the maintenance of the health of the individual is the chief requirement for the healthy growth of the state. In such places, therefore, where the nations of the earth meet in friendly competition to exhibit the results attained in manufacture, science and art, hygiene is beginning to occupy a prominent position. It was the aim of Germany to show the educated public, as well as the scientist, at St. Louis what has been accomplished by hygiene and to present in a special German hygienic exhibition descriptions, illustrations and models of all discoveries which her scientific investigators have made, as well as all practical achievements of her specialists, in technical hygiene.

A recognition of the social-political principle, that the working capacity of the human body is capital which bears the highest interest, has been reserved for the present generation. This principle necessitates the maintenance of a high degree of health in individuals, and consequently imposes upon physicians not only the task of curing disease, but that of preventing it. All progress in this direction is synonymous with economic gain. On the other hand, health is the source of a nation's ability to defend itself and the first condition for the recognition of a nation's power by other countries. The acknowledgment of this fact has induced Germany, in the last few years, to extend hygienic activity, hitherto applied solely in public affairs, to the preservation of the health of the individual. Influence is thus not only brought to bear on state and communal hygienic institutions, but on the life of each individual, thus nurturing a race powerful and robust enough to fulfill the tasks imposed on it by cultural progress.

All hygienic improvements in Germany, however, have not originated solely in utilitarianism, but have their source in a spirit of brotherliness frequently found in circles having ideal views of life. The aim in view is to help the poor, the weak and the diseased, and thus institutions are called into existence which simultaneously fulfill social-political demands. The wealthy classes do not hesitate to unite with the state and community in promoting hygienic interests, and this aid has found systematic and active expression, as will be shown later on. These private undertakings also include organizations devoted to special purposes, whether relating to the health of the individual or of the general public. The German Society for Public Hygiene stands at the head of these

movements, and for twenty-eight years has endeavored in itinerary meetings to call the attention of authorities and private individuals to important hygienic problems, to aid in furnishing scientific and technical solutions and above all to educate the general public. The time-honored Meetings of German Naturalists and Physicians form a special group, and have propagated hygienic questions far and wide. The German Society for Popular Hygiene endeavors to improve the health of the individual in all directions, supplementing the work of the German Society for Public Hygiene. The German Red Cross Society has also included hygienic propaganda in its program, and among other societies with similar aims may be mentioned the German Society for School Hygiene, the German Society for the Suppression of Quackery, the German Society for Public Baths, the German Committee for the Investigation of Cancer and the German Society for the Suppression of Sexual Diseases. The periodicals published by the various societies afford the general public a mass of instruction and at the same time offer ample material for treating the questions at issue.

The development of hygienic institutions in Germany is chiefly due to *German Science*, which has so ably adapted itself to the needs of life and has opened the way for practical work by careful and successful investigations. The Munich school, distinguished by the name of Max von Pettenkofer, introduced hygiene into public life. It is, furthermore, universally recognized that the great discoveries of Robert Koch are not only of vast scientific importance, but have proved of great value to public and private hygiene and practical veterinary science.

The participation of the government in public hygiene led to the formation of a central technical administrative institution, the Imperial Board of Health, directly subordinate to the Imperial Department of the interior, and bearing the character of a council. This institution was called into existence towards the end of April, 1876. Its duties consist in supporting the government in preparing and putting hygienic-police measures into practice and in observing their effects as well as in furnishing official information to the authorities in all cases when required in observing the development of hygienic-police and medical legislation in foreign countries and in compiling medical statistics in Germany. In order to be capable of meeting increased demands, and above all to supplement and test all scientific investigations by special experimental work, the board of health is furnished with laboratories, which are constantly being extended and enlarged.

The Imperial Board of Health is aided by the Imperial Hygienic Council, which actively supports all the federal governments in matters regarding public hygiene. A special committee of the Imperial Hygienic Council is engaged in compiling a German pharmacopœia.

A large number of hygienic matters have been regulated in co-operation with the Imperial Board of Health, partly by government legisla-

tion or decisions of the Federal Council and partly by proposal of the administrations of the several federal states. The most important regulations are those regarding the examination of physicians, the decision of the Federal Council of June 28, 1899, concerning vaccination, to the vaccination law of April 8, 1874, the law enacted June 30, 1900, for the suppression of diseases endangering public health, the rules for carrying this law into force, the measures for the suppression of typhoid fever, regulations for the transport of corpses, regulations concerning the police control of ships entering German harbors, the law passed May 14, 1879, pertaining to trade in provisions, table delicacies and useful articles, the laws passed June 23, 1880, and May 1, 1894, pertaining to the prevention and suppression of disease among animals, the law passed June 3, 1900, pertaining to the slaughter of animals and examination of meat, and the regulations for carrying this law into force.

The activity of those authorities concerned with the protection of workmen is not less important and extensive, and this includes in the broadest sense the social legislation for insurance against disease and old age. Factory inspectors supervise the various industrial enterprises, and take care that hygienic requirements are complied with in the workshops, especially with regard to ventilation, light and cleanliness. Furthermore, the interests of workmen are especially guarded by very strict legal provisions in establishments exposing employes to danger without, however, being detrimental to the work done in the establishment.

Based on trade regulations, the imperial regulations pertaining to trade in drugs were passed October 22, 1901. These determine the drugs, the trade in which is restricted to apothecaries. With regard to trade in patent medicines, etc., the several governments have complied with a resolution of the Federal Council recommending the enactment of a law containing similar regulations; this has been in force since January 1, 1904.

The Imperial Board of Health has, furthermore, undertaken the grateful task of bringing hygienic instruction into house and family, school and workshop. Numerous popular printed pamplets give evidence of the able manner in which a systematic enlightenment of the general public as to hygiene has been effected.

The administration of the medical and veterinary departments of the police is carried on by the governments of the various federal states. Numerous laws have been passed by the several states in all those departments which are not yet administered by the empire, as, for instance, in the hygiene of dwellings, in the care of the insane, in midwifery, in the school hygiene, in the suppression of local infectious diseases, etc. These regulations are enforced by the local police authorities, and they thus constitute a body constantly employed in safeguarding the welfare of the people.

The progress of German industry with its hosts of workmen in the the large trade centers has considerably hastened the growth of cities. Such a rapid increase in the population of a city often exerts an injurious influence on its inhabitants. It was therefore no easy task for the respective communities to establish such institutions with circumspection and rapidity, which were capable of nullifying this danger, without disparaging the reputation of large German cities for being abodes of education, culture and health. The municipalities were equal to the task, as was proved by the exhibition of German cities, held last year at Dresden, which can be designated as a brilliant representation of German municipal institutions, German patriotism and municipal self-government. A selection was made by experts from the hygienic articles exhibited there for exhibition at St. Louis.

Everything is represented that has any connection with the hygiene of communities, among which may be mentioned water supply and sewerage, hospitals and bathing establishments, building police and habitations, school hygiene and disinfection, slaughter houses and flaying establishments. A competent judge will find many objects showing the results of extensive research publicly exhibited for the first time. In the water supply exhibit one of the chief novelties is a process of removing bacteria from drinking water by ozonizing it. The method of double irrigation is also new, whereby waste water, which has once passed through fields, can be utilized for agricultural purposes and rendered perfectly pure, by conducting it over meadows before its outlet into an open watercourse. The artistic wall paintings exhibited by the imperial board of health are both new and instructive. They represent the most important methods of water supply and sewerage in landscape style, and are intended to arouse intesest and draw attention to their importance.

Since the discoveries of Robert Koch a revolution has taken place in Germany as regards to practical methods of suppressing epidemics. This is shown by the special measures provided against the several kinds of infectious diseases. Every contagious disease has its peculiarities in regard to disease germs and method of spreading. Consideration was paid to this fact by adopting certain measures, and these were represented in the exhibits.

A special chart represents the fact that in the struggle against cholera drinking water is the chief point to be attacked. It is generally believed that the plague is often dangerously spread by rats, and as none of the five continents of the world are free from plague, every harbor is constantly in danger of being infected by ship-rats which are afflicted with the disease. An apparatus for exterminating rats on ships, invented by a member of the commission appointed by the Imperial Hygienic Council, was greeted by all harbor authorities as a valuable weapon against the plague.

All efforts to prevent small-pox from spreading would be fruitless if vaccination were not general; but the liability to contagion can be removed by means of vaccination. The great attention paid in every civilized country to the suppression of small-pox makes a demonstration of German legislation in regard to vaccination and the success which has been attained especially valuable. Small-pox is of enormous international interest. Owing to the rapidity of modern international intercourse by land and sea on the one hand, and the long incubation period of the disease on the other hand (*i. e.*, the time between contagion and breaking out of the disease), a person can, for instance, become infected in St. Petersburg and show the first symptoms after arrival on the Pacific coast, thus establishing a new center for the disease.

The vaccination law having been in force in Germany for thirty years the misery and terrors of an epidemic of small-pox are unknown to the present generation. As a native disease it is entirely unknown there, and if a case occurs now and again, it is always one that has been imported from foreign countries. It is comprehensible, therefore, that such cases occur on the frontiers and in towns on the coast. The number of small-pox cases in Germany were as follows: 1898, 129; 1899, 346; 1900, 392; 1901, 375; 1902, 112.

In order to realize the significance of these small numbers they should be compared with those of the City of New York*, where 1,964 cases of small-pox were registered, and with St. Louis†, where 1,916 cases occurred during 1901.

The success of German vaccination legislation has been repeatedly recognized by foreign countries. It was pronounced excellent at the Ninth International Congress for Hygiene and Demography in Madrid, and served as a pattern for the resolutions passed at the Tenth Congress, held in Paris. The "Comite Consultatif d'Hygiene" in France has projected vaccination regulations,‡ which agree in all important points with the German laws. Since the experiences of recent small-pox epidemics England is also about to establish vaccination laws.§

In the suppression of typhoid fever Germany has recently made great progress. Knowledge of the fact that the patient himself causes the greatest danger of contagion was of the utmost importance. Apparently harmless cases, those afflicted very slightly, and, above all, cases of children have proved to be extremely dangerous sources of infection. Freedom of movement facilitates the spreading of infected germs more than in cases where patients are confined to their beds. In order to suppress abdominal typhoid fever, the greatest consideration must be

* Annual Report of the Board of the Department of Health of the City of New York for the year ending December 31, 1901, p. 33.

† Annual Report of the Commissioner of Health for the year ending March 31, 1902.

‡ Bulletin de l'Academie de Medicine, 1903, p. 131.

§ The Medical Magazine, 1902, p. 695.

given to acquiring a knowledge of the source from which the disease spreads; it is therefore necessary to investigate each case of typhoid fever and discover where the contagion originated. A bacteriological diagnosis furnishes reliable information here. This task can, however, be carried out solely in bacteriological laboratories; the establishment of these has begun in many parts of Germany, and the results of their activity will prove beneficial to all parts of the Empire.

The efforts to suppress tuberculosis are mostly carried on in social departments. Medical science and social reform work here in unison. A spirit of humanitarianism has prompted the German "hospital-home" (Heilstaette) movement, and its efforts have been crowned with success. Enthusiastic aid for this magnificent work, which is worthily represented in the exhibition, is offered by charitable societies, legacies, insurance associations, hospital-home societies, communities and private individuals. All efforts are centralized in the "German Central Committee for Establishing Hospital-Homes for Consumptives," founded in 1885 under the protectorate of Her Majesty the Empress, with the Imperial Chancellor for its chairman.

In addition to the treatment of curable patients in hospitals, a second and equally important task consists in providing invalid homes for incurable workmen, thus diminishing more and more the danger of contagion.

In several federal states further measures against tuberculosis consist in compulsory registration of cases and disinfection of dwellings. Steps in this direction can only be taken very gradually, as it cannot yet be foreseen whether such strict measures can be introduced generally.

The measures best adapted to the suppression of leprosy consist in placing persons afflicted in a hospital-home. On the eastern boundaries of the Empire, near Memel, where cases have already appeared, a leprosy hospital has been established. In spite of its small size, all claims made on it can be fulfilled. Exhibits have been especially made concerning it on account of its great hygienic importance.

The contagious diseases already mentioned and their suppression, together with other infectious diseases of human beings and animals, are represented in the medical department of the German Educational Exhibition. This is the united work of the Imperial Board of Health and the Royal Prussian Ministry of Education, especially of the Institute for Infectious Diseases.

An important task of public hygiene in Germany is considered to lie in the control of trade in foods and table delicacies. The Imperial Board of Health takes an active part in all work belonging to this branch, testing methods of investigation in its own laboratories, furnishing theories and determining the value or worthlessness of preservatives. A model laboratory for examining foods has been located in the Agricultural Building, directly adjoining the collective exhibition of the

German Food Industry, and it was intended that this location should serve as a reminder that Germany makes the most severe demands on its own productions in regard to purity and freedom from adulteration. All German foods and beverages are subjected to a strict control in their own country.

All these efforts of public hygiene, together with the constantly increasing information concerning medicinal and natural scientific facts, the extension of sanitary and social-political legislation, municipal activity, and last, but not least, the willingness and charitable feeling of the people in Germany, have constantly effected a decrease in disease. The results of these united forces are shown in a decrease in mortality.

The total mortality in places containing over 15,000 inhabitants was reduced, during a quarter of a century (1877—1901) by 7.3 per 1,000.‖ Whereas 27 in 1,000 persons died during 1877–78, only 19.7 died in 1901.

The division of these figures under the several headings shows a constant decrease of all preventable diseases during the above mentioned twenty-five years.

In 1901 only one person in 1,000,000 inhabitants died from small-pox and typhoid fever, whereas in 1877 respectively six and sixteen times as many persons died.

In 1877, 46 persons in 100,000 inhabitants died from abdominal typhoid fever; in 1901, only 11.

The number of deaths from puerperal fever has been reduced to one-third of their original number; *i. e.*, from 15.4 to 5.5 in 100,000 inhabitants.

In 1877, 372 in 100,000 inhabitants died from consumption; in 1901, only 205.5.

In 1877 the mortality from diphtheria was 104; in 1901, 27 in 100,000 inhabitants.

During the last quarter of a century the mortality from measles decreased from 30 to 25 in 100,000, and from scarlet fever from 61 to 23.5.

We trust that the exhibition has obtained the approval and interest of all those engaged in hygienic work, and that it will aid in extending the reputation of Germany as a healthy and progressive country to all parts of the world.

‖ Statistical Quarterly of the German Empire. Published by the Imperial Statistical Department, 1903, Vol. 3, p. 177.

REMARKS ON THE GERMAN EXHIBIT OF METHODS TO PREVENT INFECTIOUS DISEASES.

By Carl Fisch, M. D., of St. Louis.

The prevention and extermination of infectious diseases is a side issue of the trend of modern practical medicine to prevent disease rather than to cure it. Cure means the re-establishment of a so-called normal condition, or at least the re-establishment of a condition, to our eyes identical with the normal. The way in which such a re-establishment is brought about, is a secret of our organism into which we have not penetrated sufficiently to understand it fully. We have learned, however, that we cannot specifically influence a cure, that we can only stimulate the tendency to cure to do its work. The degree to which we can do this varies in the different pathologic processes, and nowhere will we succeed without the helping hand of nature's vis medicatrix. This hand will not be held out to us unless we have discovered the causative agent of a pathologic condition; only under this condition will we be able to act on it in a way that nature's efforts may be effective. And it is a fact that the elucidation of the etiology of diseases enables the great progress of modern practical medicine, based as it is on the totality of our knowledge in all of the various branches of biologic science. Knowing the existing cause of a disease, and admitting at the same time our comparatively limited means of influencing the course of a disease, medicine began to utilize the knowledge of the cause for the elimination of the possibility for the arising of such a cause. In recognizing that normal and pathologic conditions are only conceptions of our human limited perception, that there is no sharp boundary between the two, and that the one is nothing but a one-sided deviation from physiologic, so-called normal harmony of the inter-relation of the different parts of an organism, it was led to devise means to keep this harmony intact, and to develop it in its highest perfectness.

Of course, here, too, the way is barred by many obstacles. Our intimate knowledge of this harmony is, and must be, necessarily crude, we will never be able to do more than to guess at its beauty. It is finally only a conception of our mind, and what we take to be proofs of its real existence, are facts and observations made with our organs of perception, imperfect as we know, and in character always and unavoidably human. We cannot get beyond them, no matter what philosophy may say.

The question that hinges on this point is whether the way adopted by modern medicine and hygiene to prevent disease is subservient to natural conditions, or speaking anthromorphically, is it in congruence with natural laws? Do we help nature by it, or do we obstruct its course? To answer this question definitely, is of course excluded; its justifica-

tion, however, ought to be recognized. In one direction, an answer may be given in a positive sense, with a high degree of certainty, that it is in the direction of the modern attempts to lead us back to a more natural life, an attempt comprising all of the hygienic and sanitary improvements of our time, that are so beautifully exemplified by the various hygienic and especially the German exhibitions. What can be done in this line, and what ought to be done to bring the race to a standard, although a voluntary one, is suggested by these demonstrations definitely and clearly. It is not my part to enter into a discussion of this side of the question, although it can be safely said that prevention of diseases in this way will be a certain consequence.

As to the extermination of infectious diseases, the question is less easily answered. There is no doubt but that a general and uniform improvement of our hygienic life and habits would, in the course of time, decrease the acquisition of infectious diseases; it certainly will do so in tuberculosis; most likely it will do so in other infectious diseases. The belief in this is based on the death-rate caused by these infections, a rate that comprises even in the most serious epidemics and after the same conditions of exposure always only a certain percentage of a population. We have reason to think that this is not due to accidental causes, but to inherent qualities of the individuals. We know that whole populations after a severe epidemic, a "Durchseuchung," as the Germans say, can remain free afterwards.

Theobald Smith has lately suggested many valuable points about the mutual relation of the host and the pathogenic micro-organism, that in its development most likely follows that of all other biologic processes. They come and go, and stages of their development we observe in the relative superiority of the one or the other in the great variety of infectious diseases. No infectious disease will remain forever the same in its clinical aspect, and a stage will be reached in all of them where there will be no antagonistic action between the two parties and a symbiosis exists, that only through intercurrent disturbances of the equilibrium can be changed to a fight. That this is so, we know, from certain well authenticated occurrences. Mankind will not perish from epidemics, nor be interfered with in its progress by them, unless it, by its own fault, weakens its position. To a degree this latter possibility may have become truth by the innumerable invasions, that civilized life makes on our natural constitutional qualities. It will be a long time before modern hygiene has generally established a condition that can be used as a rational basis for not only entertaining such views on infectious diseases, but for putting them into practice and to live up to them. As it is now we must protect ourselves by all means. Our momentaneous claims on life are so great that human life has become the most valuable thing on earth, and that the saving of life means an addition to our momentary resources.

We have no time to wait for developments; we, according to our means and knowledge, must ourselves open the fight and try to destroy that enemy which by its sudden attacks claims our life. For the fight in this direction against the acute infectious diseases, the last twenty years have furnished a great deal of material of the utmost importance. This material is most emphatically collected and represented in the German hygienic display. The causative agents of the diseases have been discovered; they have been followed step by step through the infected individual, they have been studied in all of their biologic and parasitic features to an extent that they easily can be confined and made inocuous. Theoretically, it should be easy to eliminate them altogether, if only our physical means were sufficient. That for certain diseases, however, such a possibility exists, and that by concentrated energy the final result can really be reached, that is the great object of the representations given in this exhibit.

There is one reigning idea in all of it, it is the originality and the genius of Robert Koch, that speaks to us. What he has taught us about tuberculosis, that the only essential source for its transmission is the human tuberculous patient, we find widened here to a thesis comprising all of the acute infectious diseases. There is no epidemic of any of them possible unless the transmitting vehicle (air, water, insects, etc.), is charged with the microbes living in an individual suffering with the disease conveyed by the vehicle. We knew this, and the gigantic attempts at protection by water regulation, sewage disposal, mosquito extermination and wholesale sterilizations of the every-day necessities, was the expression of our appreciation of this truth. But it soon became apparent that it was impossible to keep up this mode of protection indefinitely, and that it could not be carried out to the extent of excluding all possibility of danger; the financial consideration alone excluded this. This is the point where Koch's work set in and that of his disciples, the ripe fruit of which we have seen before us. Like all of Koch's discoveries, it surprises by its simplicity and clearness. Koch recognized that since transmittance of an acute infectious disease in most cases came about by a direct or indirect contact with the excretions of a patient suffering from the disease, it was necessary to render such contact impossible. The only way to prevent it is to destroy the microorganisms as soon as they leave the body or as long as they are in his system, like in malaria. The isolation of such a patient, and a constant control of his excretions and secretions, are the only rational means possible to prevent the patient from becoming a disseminator of the disease. In this form the solution of the problem appears very simple, so simple that it appears not even surprising. And still it must be surprising if we compare, for instance, this simple solution to the endless and tedious work done daily on a problem like the length of time that a typhoid bacillus could live in water. What does the information about

this mean practically when we have it so easy to prevent a contamination of the water? We have fully learned that protection alone by the above named sanitary methods will never become infallible, nowhere and under no conditions, unless the possibility of a contamination can be excluded. This cannot be done absolutely without a control of the individual patient, and in the future every attempt will fail that does not start from this axiom. If we think that the elimination of infectious and contagious diseases is one of our most important tasks, we cannot possibly achieve it in any other way. This is the meaning of the German Exhibit so direct and logical that everything else merely serves the purpose of emphasizing its inner truth and correctness. It accounts for phenomena so far not understood, it is the scientific result of their investigation. It is given to suffering mankind if it will accept it.

The way in which this demonstration is made, is well selected and noble. It consists in the representation and demonstration of every step that has been made before arriving at the final result. It would be of no interest to mention details to prove this, nor to refer to special methods, procedures, or apparatus. They are of specialistic interest and do not concern us here. But what must be expressed is an admiration of the method to disseminate the knowledge and to impress on the public the importance of the results obtained by an excellent series of freely distributed publications. Written with absolute scientific objectiveness, and nevertheless in a language easily understood by any reader not specially prepared, this collection of pamphlets is a beautiful exemplification of humanitarian work.

This problem of preventing infectious diseases, is the pivotal point of the exhibit. So far only the most impressive side has been discussed, the elimination of the causative agent There are other methods that must be at least mentioned, of which the representations given are exceedingly valuable and full of new suggestions. This refers in the first place to the active immunization against certain diseases, and, above all, to smallpox, The methods of vaccination have been worked out in Germany to a degree that can only be appreciated by a close study of the statistics of the results. There are new processes for the obtaining of sterile lymph, for preserving it, etc., that alone would fill pages to be described.

The directions for vaccination are of a definiteness and clearness that, if followed, would make the process absolutely safe. But all of these results do not greatly widen our views or alter our methods of procedure. The same obtains, of course, for those means to be used in the active fight against the developed disease, the antitoxic sera. Germany's reputation for the excellence of these products is established, and it would seem unnecessary to try to impress it by an exhibition of antipneumococcic and other sera. Perhaps this could not be avoided.

The institutions organizing the exhibit mainly desired to impress the

utilization of scientific investigations for the combatting of acute infectious diseases. They have done it in a way so superior to everything else shown with a similar intention by other countries, that even Japan would appear little beside it. So, I may be allowed to confine my remarks to the German exhibit.

THE FIGHT AGAINST TUBERCULOSIS AT THE LOUISIANA PURCHASE EXPOSITION.

By Albert E. Taussig, M. D., of St. Louis.

In the southwest portion of the palace of education lay a group of exhibits that from the very beginning of the Exposition was of the greatest interest, especially to physicians. Here were gathered together the hygienic exhibits of the various states and foreign countries, and while as was natural the most entertaining exhibits concerned the warfare against the acute infections and the tropical diseases, no inconsiderable portion of the space in many of the sections was devoted to the contest against the great white plague.

France illustrated her anti-tuberculosis campaign only indirectly. In Paris, as well as in the large French cities, a spectacular battle is being waged against the abuse of alcohol. Walls and bill boards are covered with posters impressing and illustrating the pernicious effect of strong drink, and at least so far as the French exhibit showed, the fight against tuberculosis is only an appendage of that against intemperance. Side by side with placards declaiming against the use of alcohol as the great predisposer to tuberculosis, are others warning against spitting in public and against bad hygiene of all sorts as aiding the spread of consumption. Whatever may be thought of the poster method of combating intemperance, the spreading among the public of correct notions concerning the causes and contagiousness of consumption can only be productive of good. An amusing exhibit in the same section was a so-called sun-villa, intended as a residence for a wealthy consumptive. It is a model of a rather fantastically designed house, the front of which, containing the living and sleeping rooms, consists chiefly of windows. The entire building revolves on ball-bearings so that the front may always be kept turned towards the sun. It is so well balanced that, as the prospectus puts it, "a maid-servant can turn it." The water supply, sewage, etc., are disposed in the axis of the house so as not to be interfered with by its revolution. A sun parlor would seem to serve the same purpose.

The Japanese, while their hygienic exhibit was second in interest only to that of the German empire, seem as yet to be paying comparatively little attention to tuberculosis. They exhibited a variety of tuberculins and anti-tuberculous sera, but seem not to have entered upon a real contest against consumption as a sociologic evil.

Cuba, too, in her exhibit illustrated chiefly the attempt to abolish yellow fever and malaria by means of the extermination of the mosquito and by preventing the access of mosquitoes to infected individuals. A beginning has, however, been made as regards a scientific attempt to reduce the mortality from tuberculosis. To that effect the Havana Health Department "runs a dispensary exclusively dedicated to the care and treatment of pulmonary troubles, whereby the outdoor patients are benefited, while an opportunity is afforded for coming in touch with the incipient cases that otherwise would escape the action of the authorities. The physical culture of the children is also given in the same building, after which they get some nourishment, so much wanted by that class of patients. The anti-tuberculosis plan includes the inspection of houses, hotels, boarding houses, cigar factories, dairy stables, etc., and the disinfection of premises, as well as the delivery of lectures on the prophylaxis of the disease in all factories and institutions, besides the distribution of pamphlets and circulars with the recommendations to be followed for the prevention and hygiene of tuberculosis."

The German hygienic exhibit, by far the most instructive and complete demonstration of methods and results shown at the Exposition, contained also much of great interest concerning tuberculosis. The Imperial Health Department at Berlin contributed a number of statistical charts illustrating the mortality from tuberculosis in town and country. Thus while 31 per cent. of all deaths in Europe, at least among those aged fifteen to sixty years, must be ascribed to tuberculosis, the great bulk of these deaths occur in the cities, the country districts showing a very low tuberculosis mortality. The various hygienic institutes, both municipal and university, contributed exhibits of laboratory apparatus, sputum cups, sera, cultures, etc., etc. A striking demonstration of the menace to the health of the community formed by a coughing consumptive, deserves special mention. It consisted of three large glass plates which had been placed before a coughing consumptive at distances of a quarter, half and one meter. The plates were then fixed, stained and counterstained in the usual manner. The tiny drops of sputum on each plate appeared as small blue specks and varied in number about inversely as the square of the distances at which the plates had been exposed. Each one of these blue specks, upon microscopic examination, was found to contain tubercle bacilli. A model "broadside," containing instructions for the consumptive and for his family, was exposed for distribution in both the English and the German language.

In another building the German sanitoria had their exhibit, and here could be seen photographs and plans of the institutions for the care of early cases of tuberculosis—institutions in which Germany is perhaps richer than any other country and upon which chiefly she relies in her contest with tuberculosis.

It is, however, in the operation of the German law for the compulsory insurance of workmen that her chief hope of the future lies. In Germany much more than in this country, the bulk of the workingmen earn only just enough to support themselves and their families. Practically they are unable to lay aside any appreciable proportion of their income, and so when illness, accident or old age supervene they would, if left to themselves, find themselves penniless and forced to have recourse to charity. This the compulsory insurance law is intended to avert. Each workingman is compelled to deposit with the government, by means of the purchase of stamps, a certain small sum weekly, depending upon the amount of his wages. His employer contributes a similar sum, and the government also adds its quota. From the fund so obtained the workingman draws a corresponding income in case of illness or accident, which may be temporary or take the form of a pension, according as his injury is transient or permanent. In any case he gets his medical attendance, drugs, etc., free of charge. The active management of these matters of insurance devolves upon local associations (*Kassen*), on the boards of directors of which both employers and employes are represented. In many cases it is clearly to the patient's advantage to be given hospital treatment, and in that event he is sent to a suitable hospital, the hospital care being counted as equivalent to part of his insurance money and the rest being paid to his family for their support. Since the entire mass of the industrial population participates in this insurance scheme, the hopelessly sick being admitted on the same terms as the robust, the *Kassen* from the very beginning found themselves with a great number of consumptives on their hands, who required not only pensions but medical treatment. The result was that sanatoria for the care of the tuberculous sprang up all over Germany, each local association or group of associations vying with the others in the perfection of equipment and salubrity of location of its sanatorium. Groups of associations, sometimes very large, often combined for this purpose and succeeded in erecting and maintaining tuberculosis hospitals, that are among the best in the world. It soon, however, became clear that it was not only better for the community, but cheaper for the insurance organization, to prevent a consumptive from losing his ability to work than merely to care for him after he had become an invalid. And so, while the law originally intended to grant insurance only against actual disability, it has since 1889 been extended so as to enable it to act prophylactically. The various insurance associations have carried out this plan with varying degrees of energy. The exhibit of the insurance department of the Hansa towns (Hamburg, Bremen, Luebeck, etc.) is especially complete and interesting on this point. The authorities there have tried their utmost to persuade patients not to wait until no longer able to earn a living, but to undergo a course of treatment at a sanatorium as soon as the diagnosis of pulmonary tuberculosis was established.

Notices were sent to all the insured workingmen detailing the symptoms that might point to incipient phthisis, and urging all who suspected that they might have the disease to consult a physiciau, and if the diagnosis were established to submit to a course of institutional treatment. Appended were directions concerning the danger from sputum and rules as to its disposal. Of late, inspectors have been sent into the poorer quarters of the afflicted cities to report cases and to urge early treatment. At first the response was very meager, only two patients being admitted to treatment in 1892 and only thirteen in the following year. In the course of time, however, the conviction of the importance of early treatment of phthisis has permeated the working population more and more, so that last year over seventeen hundred cases of incipient phthisis were admitted to the sanatoria of the Hansa cities. The requirements for admission are simple. The applicant, who of course must be a member of the local insurance group, must present a certificate from a qualified physician, stating first that he has pulmonary tuberculosis, and second, that his condition is such that a course of sanatorium treatment may be expected to preserve the patient's ability to work, or, if partly lost, to restore it in a reasonable space of time. There is no absolute limit set to the time a patient is permitted to stay. He is discharged when, in the opinion of the director, the ability to work like any one else has been fully restored, or, on the other hand, when it has become clear that such a restoration is out of the question. Any description of these sanatoria, located in the most beautiful portions of the Harz mountains, would be out of place since they do not differ essentially from others. The results have been very encouraging. Some 19 per cent. have been entirely cured anatomically, and another 19 per cent. very nearly so. Over 92 per cent. were discharged greatly improved; 77 per cent. were able to work as well as before their illness. What effect these measures will have upon the health of the community, of course, remains to be seen, but it can hardly be otherwise than strikingly good. Certainly it is a case of enlightened economy and public beneficence going hand in hand.

There is another way in which these sanatoria protect the health of the community, and so indirectly economize insurance. Many of these consumptives expectorate tubercle bacilli and so tend to spread the infection. If this is often true of these cases of incipient phthisis, it is true to a far greater extent of those patients with advanced consumption not eligible for admission to the hospitals discussed above. For these unfortunates, both for humanitarian reasons and from the point of view of economy, the insurance boards, and again above all those of the Hansa cities, have built homes. Here, hopeless cases of consumption are segregated for their own comfort and for the protection of the community. No compulsion is used, and in spite of attempts to make them as comfortable as may be, it has not been found possible for various

reasons to keep a considerable portion of the inmates from returning home. But even these have during their more of less brief stay in the home been trained in personal hygiene and in the care of their sputum, so that they leave the institution far less a menace to the public health than they entered it.

It is thus clear that the results of Germany's compulsory insurance upon the fight against tuberculosis furnish quite as strong an argument in favor of the law as do the social-political reasons on account of which it was enacted.

In our country, too, the fight against tuberculosis has of late begun to be waged wlth great earnestness and system. Various sanatoria exhibited plans, photographs and models, and many of the tent manufacturers and instrument makers had interesting exhibits. A modest little wall cabinet containing plans and sundry information gave evidence of the excellent work done in Philadelphia by the Henry Phipps Institute for the study, treatment and prevention of tuberculosis. The institute was founded through the generosity of Mr. Henry Phipps, of Pittsburg. Mr. Phipps selected Dr. Lawrence F. Flick, of Pittsburg, as the head of the proposed institution, and the two gentlemen made a preliminary inspection of European hospitals and dispensaries for the consumptive poor before formulating their plans. On February 1, 1903, the institute opened its first clinic in this country for the sole treatment of cases of tuberculosis. Temporary quarters were found at 238 Pine street, Philadelphia, in the heart of the congested district, where an old house was converted into a fairly adequate hospital. At the end of the first year the institute had in its service a trained staff of twenty-one physicians besides the corps of nurses, inspectors and attendants. In the dispensary, morning and afternoon clinics are held daily except on Sunday, and a daily average of forty patients are treated. The qualifications for treatment are:

1. The patient must be tuberculous.
2. He must be too poor to obtain paid medical attendance.

In addition to medicine, patients are supplied with milk in quantities from one to four quarts daily; also spit cups, paper napkins and disinfectants are given with explicit directions as to hygiene. These last are distributed in the shape of little folders containing full instructions as to the danger to others from tuberculous sputum and the best manner of disposing of the latter, directions as to the proper mode of life and ending with a few well formulated words of encouragement. A supply of these folders was kept on hand at the place of exhibit for distribution to all interested.

A corps of inspectors visits the patients in their homes at regular intervals to insist upon the observance of strict hygiene and to instruct in its details. The hospital wards, which were opened a short time after the dispensary, are used to segregate incurable cases for purposes of

prevention and to supply clinical material for scientific research. The only demand made of the family of each patient before admission, is a document signed by the nearest relative permitting an autopsy in case of death. As careful post mortem examination is made of every patient that dies, a valuable fund of data is rapidly accumulating that is destined to become of great importance in increasing our knowledge of this disease. At present about fifty ward cases can be accommodated at one time, but a rapid growth of the hospital in the near future is certain.

As a part of the educational work of the institute an international series of five lectures has been given in Philadelphia during the past winter. To these last not only the entire medical profession of the vicinity, but also the general public were invited. The lecturers were: Dr. Edward Trudeau, of New York; Prof. Sims Woodhead, of Cambridge, England; Dr. William Osler, of Baltimore; Dr. Herman Briggs, of New York and Prof. E. Maragliano, of Genoa, Italy.

The health department of St. Paul has an interesting exhibit of pictures and literature that shows it also to be handling the question of tuberculosis in vigorous fashion. Not only have stringent anti-spitting laws been adopted, but tuberculosis has been placed on the list of infectious diseases and all cases, both in private practice and in institutions, must be reported. How thoroughly this rule can be enforced remains to be seen. As yet the health department takes no action upon these reported cases, being content with seeing to the thorough disinfection of all apartments formerly occupied by a consumptive and vacated by the death or removal of the patient. The owners of such apartments are required to disinfect them in a manner satisfactory to the department. Failure to do so is followed by the posting of the following placard upon the door of the infected premises.

NOTICE.

Tuberculosis is a communicable disease. These apartments have been occupied by a consumptive and may have become infected. They must not be occupied until the order of the health commissioner directing their renovation and disinfection has been complied with.

This notice must not be removed under penalty of law, except by the commissioner of health or an authorized officer.

And such placard shall not be removed until such time as the order or directions of the commissioner of health shall have been complied with and the removal of such placard authorized by the commissioner of health.

This invariably suffices to bring the delinquent landlord to terms.

The most instructive of the American hygienic exhibits was that of the New York City Department of Health. It filled a large number of wall cabinets and consisted of pictures, plans and the like, illustrating

chiefly the efforts made by the department in the direction of preventive medicine. The exhibits illustrating the attempts now being made in New York towards an administrative control of tuberculosis were of particular interest. The work of the New York City Department of Health, under the direction of its able general medical officer, Dr. Hermann M. Biggs, is well known, and yet a brief recapitulation may not be out of place here. The central feature is an elaborate system of registration. Every physician is required to report each case of tuberculosis that comes under his care—name, address, sex, age, color, nationality and the character of his dwelling. Moreover, the department conducts a laboratory for the free examination of specimens of sputum sent in by physicians and the sending in a specimen in which tubercle bacilli are found is considered equivalent to a notification, the information necessary for registration being required with each specimen of sputum sent in. It was at first feared that this compulsory system of notification might give rise to much opposition, and even work hardship in some cases, but the results have not justified these forebodings. This is in part due to a wise limitation of the activity of the department, as stated in the following provision:

"The information thus obtained regarding private cases is for record, and in no instance are visits made to such persons by the inspectors of the department, nor does the department of health assume any sanitary surveillance of such cases (unless the person resides in a tenement house or lodging house, or unless the attending physician requests that an inspection of the premises be made). In no case where the person resides in a tenement house will any action be taken, if the physician requests that no visits be made by inspectors and is willing himself to deliver circulars of information or to furnish such equivalent information as is required to prevent the communication of the disease to others.

"Once a year the attending physician is requested by letter to inform the department whether the patient is still living; if so, where, and whether his condition has changed for the worse or better. Physicians are especially requested to notify the department of any change of address on the part of their consumptive patients."

Cases are still more readily and completely registered from the reports required from all public or private institutions and from reports made by tenement and other inspectors. It has been estimated that in this manner about 85 per cent. of all cases of tuberculosis occurring in New York City are reported and registered with the health department. Those cases that occur in tenement or lodging houses, and that therefore are a greater menace to the health of the community than those living in private houses, are visited by inspectors of the department unless the attending physician has requested that no visits be made. The inspector notes the hygienic surroundings of the patient and gives such advice and instructions as the case may require. Where patients are

incapacitated for work the inspector refers the case to a department nurse, who repeatedly visits the case, ascertains whether instructions are being observed, distributes sputum cups, and makes herself generally useful. When help in the way of diet, fuel and the like is required, the charity organizations are notified and supply what is needed.

When application is made to the department for the admission of a case of pulmonary tuberculosis to a hospital, or when an inspector finds that a consumptive cannot receive proper care, food, or medical attention at his home, or when, either willfully or otherwise, he constitutes a danger or menace to those about him, the case is referred to the department of charities, with the recommendation that he be sent either to the city hospital for consumptives on Blackwell's Island, or to Seton hospital, where the city maintains a number of free beds.

In instances where the consumptive absolutely refuses to take the necessary precautions as to the proper disposal of the sputum, etc., the department of health will enforce removal. It has fitted up special pavilions for advanced cases at Riverside hospital (the Riverside sanatorium for pulmonary diseases), where such cases may be sent at a few hours' notice, and detained if necessary.

In addition to the above, the department carries out the disinfection of the rooms vacated by a consumptive, and, in case of his death, of the carpets, bedding, etc.; also, forbidding the reoccupation of the apartment until the disinfection has been completely carried out. The department moreover conducts a campaign of education on this subject, endeavoring by means of circulars and pamphlets, as well as through the work of inspectors and nurses, to spread among the laity, both tuberculous and healthy, a knowledge of the hygiene and prevention of tuberculosis. An efficient supplement to the work of the department is formed by the activity of the municipal clinic for the treatment of pulmonary diseases. This clinic was opened on March 1, 1904, in a new building especially designed for the purpose.

It contains a registration room, drug room, two waiting rooms, x-ray room, throat department, and two clinics, for male and female patients, respectively, each with its examination room. The rooms are well ventilated and are all lighted by skylights, the building being only one story in height. Trained nurses are always in attendance. It is hoped that the establishment of the clinic will assist in attaining the following objects:

1. The early recognition and accurate diagnosis of pulmonary tuberculosis.

2. The careful supervision of persons receiving treatment.

3. The continued observation at their homes of indigent, needy and ambulatory cases, including all those discharged from the public institutions of the city.

4. The removal of cases requiring such care to a hospital or sanatorium.

5. The provision of a municipal institution where cases of tuberculosis may be referred.

6. The extension and strengthening of the sanitary control of tuberculosis among the poor by the department of health.

7. The care of laryngeal cases.

The beneficial results of these measures have already begun to show themselves. The fall in the tuberculous death rate has been greater in New York than in any other large city in the world, and that in spite of the fact that the conditions in New York—her large foreign population, huddled together in great tenements—make such work of peculiar difficulty. Her total tuberculous death rate has fallen 40 per cent. in the last sixteen years, and the decrease in the death rate of children from pulmonary tuberculosis and tuberculous meningitis, these being the two forms most accurately diagnosed, has been even greater. It seems certain that the future will see a reduction quite equal to that which has already taken place.

While thus the tuberculosis exhibit as a whole offers much ground for satisfaction, it furnishes quite as strong reasons for regret. New York city and Germany alone exhibited systematic attempts to combat the spread of tuberculosis, and each of the two systems used in either place lacks many of the merits of the other. Modern sanitary science will wage the most effective war possible against tuberculosis only when both the German and the New York methods are applied. The prophylaxis and therapeutics of tuberculosis are inextricably interwoven. While the New York system is eminently correct, as far as it goes, it requires for its completion the addition of a sanatorium system like that of the Germans. Not only would the removal from the community of a considerable proportion of the early cases of tuberculosis remove many sources of contagion, but even if many of these individuals return to their homes uncured they have received so thorough a course of training in personal hygiene, and especially in the proper disposal of their sputum, that they not only cease to be a menace to the community, but may well become centers of popular education in these matters. It is true that we Americans are not so docile as the Germans about going to a hospital, and yet a well equipped and comfortable sanatorium for incipient phthisis would probably never lack applicants for admission. The contagiousness of leprosy and tuberculosis are probably not far apart, and the intelligent but humane sanitary science of the present may yet succeed in eradicating tuberculosis from our midst as nearly as the barbarous segregation of the middle ages succeeded in stamping out European leprosy.

RADIOGRAPHY AND ROENTGEN APPARATUS.

By Ph. Bockenheimer, Berlin, Germany.

In the year 1895, Wilhelm Konrad Roentgen discovered the x-rays. It soon became obvious that this discovery was of the greatest importance for all departments of medical work. A new branch of science, radiography, arose, the aim of which was to study the manifold possibilities for the utilization of the Roentgen rays in the interests of medical science. Eminent investigators have devoted all their energies to the perfecting of the technical methods. Moreover, journals and societies have been inaugurated for furthering these aims. At the universities, radiography has become one of the regular subjects of instruction. By means of radiography, science has been enriched by an enormous amount of new and valuable knowledge.

In internal medicine the application of the system is attended with great difficulties, since here the substances under observation afford an equally easy passage to the rays. Notwithstanding this the Roentgen ray methods have been brought to such perfection that they have become a most valuable diagnostic aid in internal medicine. To mention but a few examples, we can, by means of the orthodiagraph, observe the pulsation of the heart and determine its limits. Further, one is able to observe the respiration process in detail, and to recognize positively certain changes in the lungs, such as infiltration of the apices of the same. Here, moreover, the Roentgen rays do not only give diagnostic indications, but also make it possible to observe whether the changes due to disease, increase or—perhaps in consequence of a course of treatment—diminish in intensity. In contrast to the more subjective method of auscultation and percussion, for the first time it has become possible to make use of an objective, physical method for the examination of the lungs.

In respect to surgery, radiography has proved itself epoch-making. What modern surgeon would undertake to cure a case of fracture or luxation without the aid of x-rays? Through them alone can the diagnosis be made really reliable and the course of improvement established. Accordingly, a number of the most noteworthy modern advances in the treatment of fractures are due to the application of radiography. For instance, Prof. von Bergmann has invented a system by which fractures of the extremities are treated in the following manner on a special extension table which was on exhibition in the surgical department. The broken limb in question is kept in a stretched position (being at the same time kept under supervision by means of Roentgen rays), until it is considered by the surgeon to be properly set and can be held in position by a bandage. The recognition of numerous joint diseases has become possible for the surgeon only since the introduction of radio-

graphy, indeed the Roentgen system has registered its most striking triumphs in this very province of surgical practice—take congenital hip-luxation for example. The Roentgen photograph is the surest means of determining the position of foreign bodies of all kinds which have entered any of the organs from without. The position of foreign bodies which arise in the organs themselves, such as ptyalism stones, gall stones, stones in the kidney or bladder, is now ascertained with ease by means of the Roentgen rays.

Dr. Albers-Schoenberg, of Hamburg, has, in the so-called compression-diaphragm (which was on view in the exhibition), contrived an apparatus by means of which satisfactory photographs can be obtained of formations which are far beneath the surface of the body and which can otherwise be reached by the Roentgen rays only with great difficulty. A collection of such Roentgen pictures was exhibited by Dr. Albers-Schoenberg and Prof. Grunmach, Berlin.

By means of the compressed diaphragm of Dr. Albers-Schoenberg it is possible to obtain sharper outlines and better contrasts, besides greater clearness, when photographing parts which are not easily accessible (such as the lumbar vertebra, stone in the kidneys, etc.)

This apparatus consists essentially of a lead-lined cylinder (press cylinder), which is fixed to a metal stand in such a manner that it can be moved easily in any direction. To the upper end of the tube, which has a central opening, a wooden frame is fixed, in which lead diaphragms can be placed, and which likewise carries the Roentgen tube. The importance of this apparatus for Roentgen photography lies in the fact that it enables difficult objects to be taken with great clearness, since, by pressing the tube down, the parts which have to be photographed are thereby more or less held in position and the distance between the tube and those parts is reduced, and consequently the absorption of Roentgen rays and the formation of secondary rays by the intervening parts are greatly diminished.

Besides being of the utmost importance in the departments of internal medicine and surgery, the Roentgen rays have also shown their significance in a great number of special fields; especially noteworthy in this connection is their employment (with very small plates) in determining diseases of the teeth and in the treatment of certain skin diseases. It is, however, as yet impossible to give a conclusive verdict on their successes in this last department.

Finally, mention must be made of the fact that the Roentgen methods are making continual advances in the domain of scientific experimental research. Dr. Kuemmell, of Hamburg, has the credit of having, by injecting a substance impenetrable to the Roentgen rays into the blood vessels, obtained stereoscopic Roentgen photographs which admirably show the distribution of the blood in the organism, and especially the course of the blood vessels in the extremeties. Led by the same idea,

Prof. Dr. Lexer, of Berlin, has, by injecting quicksilver oil into the blood vessels of the bones, ascertained their course, which was hitherto unknown, and by this means has been the first to explain the characteristic course of various diseases.

Just as the more delicate preception of microscopic life is associated with the invention of Abbe's illuminating apparatus, so would the achievements in the province of radiography have been inconceivable without a continuous improvement in the technical methods. We may mention, for example, the progress made in the manufacture of inductors for producing great sparking distances; inductors can now be had with a sparking distance of 1 m—and only with these can a really satisfactory view of many objects be obtained. The comprehensive exhibit of the firm of Siemens and Halske gave a practical illustration of the high point already reached in the production of Roentgen apparatus and all the details pertaining to them. But Siemens and Halske's exhibit showed, further, that technical science is doing its best to meet all the outward claims, both great and small, of practical work; it not only manufactures larger apparatus intended only for the clinic institutes, but also small, light apparatus which the general practitioner in the country or the military doctor in the field can carry about with them. During the China and Transvaal wars the significance of radiography in field surgery was most convincingly demonstrated. Thus radiography is a province in which, as the exhibition has shown, physician and technicist must supplement one another's work in continual co-operation, in order to gain from the system all that it is capable of yielding. If this co-operation is continued as it has been up to the present, Roentgen's epoch-making discovery will bring to light many a precious buried treasure and illuminate much that has hitherto been inaccessible to the imperfect means available.

"MOULAGEN:" REPRODUCTION OF DISEASE IN PLASTER OF PARIS AND IN WAX MODELS.

By M. F. Engman, M. D., of St. Louis.

The aim of the Medical Exhibit at the World's Fair is to show how the German universities deal with the subject of medical instruction. In wandering through the aisles of this wonderful display the eye catches here and there realistic portrayals of anatomical dissections; steps in operations and various syphilitic, tuberculous and other skin diseases reproduced with almost life-like minuteness in wax and plaster. To see these works of art is to at once realize their value as a method of instruction. Here we have before us in inanimate models the disease, or the operation, or the dissection as minutely detailed as it would be in life. In giving a course of instruction how valuable it is to have such models in the acme of perfection for reference, as we know how difficult it is to obtain living examples of any particular subject, just at the time we wish it.

The Hospital St. Louis, in Paris, was one of the first institutions to adopt this method of portraying skin diseases. Their wonderful and and valuable collection in wax filled one of the large halls of the hospital, and is called the Museum Beretti. In this museum one could study almost any of the rarer diseases of the skin in life-like models; the color, arrangement and various stages of the initial eruption is carried out to the minutest detail. In fact, one was often startled by their life like appearance.

In all of the German universities this method seems to be now in vogue, for the teaching of the various manifestations of disease, not only upon the skin, but in various other organs. These models are made by first taking a plaster of paris impression or cast of the part to be reproduced, from which the wax model is made and then colored by the artist, from the living subject. In this way every papule, vesicle, pustule and crust is detailed in its exact position. The accurateness of the color effects and the arrangement of the lesions in the various conditions are wonderful.

In the German exhibit at the World's Fair a number of cases are filled with these models, the best that I have yet seen. Prof. Lassar, of Berlin, exhibits models of various forms of skin tuberculosis affecting various localities of the body. These are excellent, and, no doubt, have proved valuable to those having seen them in this section of the country, where tuberculosis of the skin is so rare. Lupus vulgaris, the most common form of tuberculosis of the skin, is particularly well portrayed, and should be very instructive to those who insist upon calling rodent ulcer and epithelioma lupus. Here we see lupus portrayed in all its various stages, from the first initial patch upon the cheek to the horrible,

mutilating forms in which the visage is rendered hardly human. The pale yellow nodules and their arrangement here portrayed should convince anyone of the clinical difference between rodent ulcer and lupus vulgaris.

Mr. Fritz Kolbow, of Berlin, the manufacturer of these moulagen, has the most wonderful and life-like specimens of this art. He exhibits models of various diseases of the eye and conjunctiva, including the various forms of conjunctivitis, diphtheria of the conjunctiva, gonorrhœa and epithelioma; also the exanthemata, in which the scarlet fever tongue and eruption is beautifully represented. Models showing the typical varicella, pemphigus neonatorum, variola and so-called syphilitic pemphigus, allow one to see these diseases side by side. He has also beautiful models of the various forms of tuberculosis of the skin, lungs, glands, spleen, kidneys, intestines and larynx. In this collection can be seen different types of carcinoma of the mamma, laryngeal carcinoma and metastatic involvement of the various organs.

Adolph Seifert, also of Berlin, and a manufacturer of these models, has an excellent exhibit of various portions of bone, cartilage and anatomical sections.

To the dermatologist the most instructive of all of these exhibits of moulagen is that from Prof. Dr. Neisser's dermatological hospital at Breslau, and of Alphonse Kroener. In this collection many of the rarest skin diseases are portrayed, also many of the more common diseases of the skin. A model labeled adenoma sebaceum is particularly good; not only the disease, but the character of the whole model in representing the individual from which the cast was taken is in complete harmony. It is surprising to note in the circular given at this exhibit that some of these models are sold as low as eight dollars, including duty. This price would make this form of teaching practical, as I suppose the models would be much cheaper to one who used a great number of them, and, as they are durable, they can, with ordinary care, be used for a number of years.

One can only express his admiration of the ingenuity, energy and care which the Germans use in their instruction of students. We have most of us received practical demonstration of these facts in the lecture rooms, hospitals and museums of Germany. We love to look back upon those days and remember the gratification we felt at their efforts. When we go into the medical display of the German exhibit in the Educational Building of the World's Fair we see much that is not new to us, things that we have seen in Germany before, but also very, very many things that are new. Since the writer's student days the moulagen have come into practical use, and are no doubt of the greatest value to the student and teacher; and not only in this way are they valuable, but through this art one can place upon permanent record the character of a rare condition which otherwise would have been lost.

EDITORIAL COMMENT.

HOME FOR ST. LOUIS MEDICAL LIBRARY ASSOCIATION.

The medical profession of this city, and especially the members of the St. Louis Medical Library Association, have reason to be congratulated upon the fact that the possession by this association of a suitable building of its own on Pine street, near Grand avenue, is *un fait accompli*. It should be a red-letter day in the annals of the medical profession of this conservative city, as it means more than first appears on the surface for the unifying and strengthening of the body medical, and will serve to bring the members into closer and more friendly relations. It is but several years ago that this Medical Library Association began in a very small way. After struggling along, it has finally been able, by the assistance of a few, to weather the storm, so that now it is more than an experiment—it is an assured reality. What has been done recently could have been accomplished much earlier, and the fault lies alone at the door of the medical profession. It does seem strange that a city the fourth in size in the United States should not have had a medical library and home sooner. However, it has come to stay, and the association is growing in numbers and importance, and now that it possesses a home, it will receive a new impetus in its growth and usefulness. It will serve, let us hope, as a center around which will cluster and develop the various medical interests in the city. Concerning this more can be said in the near future. Let us hope the members of the medical profession will rally to its support and assist in its development.

THE MEDICAL EXHIBIT AT THE LOUISIANA PURCHASE EXPOSITION.

It is a fitting testimony to the wider meaning of the World's Fair which has just ended that in the columns of a medical journal should appear an account of the impressions which the medical exhibit has made upon some of those most deeply interested in it. This recognition of a border-land territory in which the profession and the intelligent laity may meet in common interest is significant, chiefly of the broader place that medicine has taken in the problems of society. Preventive medicine is to be looked upon, not only as a system of facts bearing upon disease won by the use of technical methods and experiences, but as a very vital part of the problems which society is trying to solve. To increase the individual's capacity to live rightly and to preserve his activity, normally expressed for as long a period as possible, makes him of greater service to society, of which he is a part. To interpret this was one of the important services of the hygienic exhibit. How admirably

this was done can be seen from the accounts of the different phases of this question which are set down in this issue of the journal. As a part of the general tendency towards a wider scope of medicine is the important place which the teaching of medicine has come to fill. The exhibit of methods by which advances have come about, as well as a demonstration of the means of showing this to others in addition to measures used in placing before the student in the best way the facts already known, form the newer pedagogical science in medicine. The removal from the isolation which the teachings of medicine has so long held from all other teaching forms the chief notable advance in the past few years. No one can read the articles here referred to without feeling that there is a great emphasis placed upon the importance of inspiring in others the meaning which these demonstrations have. This, together with the methods that best accomplish it, is teaching and teaching no less in medicine that in anything else. Thus is found in the medical exhibit an attempt to correlate in the broadest way with the rest of human knowledge the special message which medicine has for the human race. In this way unconsciously perhaps the medical exhibit has echoed and become a part of the high purpose of the most striking feature of the exposition—that is the Congress of Arts and Sciences which was the interdependence and the correlation of all human knowledge. To interpret this rather than the glorification of any particular branch or any particular country is the chief purpose of the series of papers to which this issue of the journal is devoted.

ERRATUM.

In our issue of November an error occurred in printing the name of the author of the paper entitled "Strabismus: The Necessity for Its Early Treatment." This paper was written by Harry C. Parker, M. D., of Boston, but through an error the author's name was printed "Harry C. Baker."

BOOK REVIEWS.

THE PRACTICAL MEDICINE SERIES OF YEAR-BOOKS, COMPRISING TEN VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY. Issued monthly under the general editorial charge of GUSTAVUS P. HEAD, M. D. July, 1904. Chicago: The Year-Book Publishers.

The July number of the Year-Book continues the plan of its predecessors. Nearly half is occupied by a complete and very interesting summary of recent publications in materia medica and therapeutics, by Dr. George F. Butler and Dr. George L. Browning. There follows a chapter on preventive medicine by Dr. Henry B. Favill and one on climatology by Dr. Norman Bridge. In the latter, recent publications on climatology are abstracted with a good deal of fullness, so that the reader gets practically all the information that could be derived from a perusal of the original articles. The chapter on climatology, by Dr. Daniel R. Brower, is vague and unsatisfactory, qualities apparently inherent in the nature of the subject. In the concluding chapter on forensic medicine, Dr. Moyer reports a number of interesting and instructive medico-legal cases, among them a very full account of the career as a poisoner of the notorious nurse, Jane Toppan.

SERUMS, VACCINES AND TOXINES IN TREATMENT AND DIAGNOSIS. By WM. CECIL BOSANQUET, M. A., M. D., F. R. C. P., etc. Chicago: W. T. Keener & Co. London: Cassell & Co. Ltd. 1904.

Our knowledge of the nature of infective agents, and of the mode in which we are able to resist them, is of comparatively recent development, and the theories now in vogue to explain the observed facts are still more novel; so that the whole subject forms comparatively unknown ground to the majority of medical practitioners. Yet, the importance of this branch of study is very great; it is in this direction that our insight into the nature of disease has advanced most rapidly, and that the prospects of successful treatment are most encouraging.

The need is, therefore, great of a brief and yet adequate presentation of the subject, discussing it not from the point of view of the laboratory worker, but from that of the practitioner himself. Such a need is well filled by the little volume before us. Bound in flexible cloth, and of a size that admits of its being slipped into the pocket, it yet has nearly 350 pages, its small size being made possible by the very thin and yet opaque paper used. After some sixty pages devoted to an account of serums, toxines and vaccines in general, a chapter each is devoted to diphtheria, tetanus, snake venom, smallpox, rabies, plague, typhoid, cholera, streptococcus infection, tuberculosis, malignant tumors and epizootic diseases. In each case the bacteriology (or its corresponding feature) of the disease is taken up; then the preparation and use of its toxines and antitoxines, serum diagnosis and the like are discussed. The whole is very brief and to the point. The book contains hardly an unnecessary word and yet nothing of importance, up to the most recent theories and discoveries, has been omitted. Few books have appeared in recent years that can be more unreservedly commended.

DISEASES OF THE INTESTINES. By DR. I. BOAS. Second revised and enlarged American edition. Translated by permission from the German edition, with special notations and additions by SEYMOUR BACH, M. D. New York and London: D. Appleton & Co. 1904.

Since Nothnagel's epoch-making treatise on intestinal diseases, no work on this subject has appeared so valuable as Boas' *Diagnostik und Therapie der Darmkrankheiten*, of which this is a translation. The chapters on the anatomy and physiology of the intestines, as well as those on general and special pathology and diagnosis, are concise and complete and of the highest value, but the chief importance of the work lies in the emphasis it lays on the physical and dietetic management of intestinal disease as com-

pared with its medicinal treatment. The discussions, in particular of the dietetic management of acute and chronic intestinal catarrh, of habitual constipation and of intestinal neuroses, are especially thorough and valuable. The translator has added much valuable material, such as a chapter on intestinal gases, a few pages on American mineral waters, chapters on dysentery, actinomycosis and syphilis of the intestines, etc. Of great interest is the contrast between the views expressed by the author and by the translator on the management of appendicitis, the former still advocating the opium treatment with delayed operation while the latter, in harmony with American opinion, urges early surgical interference. The book is one which every physician who is unable to read the original should possess. It is well printed and the illustrations, while simple, are carefully prepared and very instructive. One fault to its get-up is its bulk. The type used is open and the paper very heavy. If the thin and yet opaque paper, that is now at the disposal of publishers, had been used a much more manageable, if less imposing volume, would have resulted.

A Manual of Diseases of the Eye. For Students and General Practitioners. By Clarence A. Veasey, A. M., M. D. 412 pages, illustrated with 194 engravings and 10 colored plates. Philadelphia and New York: Lea Brothers & Co.

"Systematic, practical and concise." These words taken from the preface well express the impression which this excellent manual makes upon the reader. It can readily be seen that Dr. Veasey has a nice appreciation of the requirements of the undergraduate student and the general practitioner, and he has presented to his audience a satisfactory outline of ophthalmology. The chapters on refraction and the accommodation of the eye, and on the anomalies of the ocular muscles are more exhaustive than is usual in works of limited scope. The illustrations which, for the most part are not original, have been carefully chosen and unquestionably add to the value of the book. The reviewer would call attention to the colored plate depicting anomalies and diseases affecting the iris and pupil, which is poorly drawn and crudely tinted. The index is well arranged and complete. We do not hesitate to recommend this little work to the undergraduate student and general practitioner.

Text-Book of Diseases of the Eye. For Students and Practitioners of Medicine. By Howard A. Hansell, A. M., M. D., and William M. Sweet, M. D. With chapters by Christian R. Holmes, M. D., Casey A. Wood, M. D., D. C. L. and Wendell Reber, M. D. 532 pp. With 256 illustrations, including colored plates. Philadelphia: P. Blakiston's, Son & Company. 1012 Walnut street. 1903.

This work is divided into eighteen chapters, the various topics being considered in the usual order. The book is written for the student of ophthalmology, whether undergraduate or graduate. The commoner affections and traumatisms are dwelt upon at length, whereas refraction, the rarer external diseases of the eye and affections of the posterior segment of the eyeball which have not proved amenable to treatment are rather more briefly considered that is usual in books of similar scope,

Especially to be commended are the illustrations with which the work is lavishly supplied. The original illustrations are beautifully drawn and stand out in such bold relief that at times one feels the superfluousness of the explanatory text. The letter press is excellent. Taken all in all, this recent addition to the now large array of American text-books on the eye will surely be welcomed by the student of ophthalmology and is a worthy product of the "Philadelphia School."

Ueber Hysterische Stimmstoerung. Hasslauer. Wuertzburger Abhandlungen aus dem Gesamtgebiet der Practischen Medicin. iv. Bd. 10 Heft. A. Stuber's Verlag 1904, Wurtzburg.

This is a fairly complete account of the hysterical affections of the larynx, the chief place in which is given naturally to the aphonias. There is first of all a discussion of

the prevailing theories of the significance of hysteria, with a short review of some of the more recent works on this subject. The clinical distinction between the various forms of laryngeal disturbance of this nature are well brought out. In regard to therapy the author recommends, first of all, psychical treatment, by which he understands chiefly gaining the confidence of the patient. The next step in the treatment consists in various forms of training and re-education, together with breathing exercises. The author is quite in line with the best neurological opinion of the day when he opposes the use of hypnotism in this class of cases. The monograph, while it contains nothing new or suggestive, is a very readable account of the subject and for that reason deserves commendation.

How to Cook for the Sick and Convalescent. By Helena V. Sachse. Second edition, revised and enlarged. Philadelphia: J. B. Lippincott Co. 1904.

This is a little cook-book, which seems very well adapted to the needs of physicians, and especially of trained nurses. Since the author in the preface assures us that all the recipes have not only been tried by herself, but have also been successfully used in six hospitals, we feel justified in recommending this little volume to the profession.

Arteria Uterina Ovarica. The Utero-Ovarian Artery or the Genital Vascular Circle. By Byron Robinson, B. S., M. D., Chicago, Ill. Published by E. H. Colgrove, Chicago, Ill. Price, $1.00.

This volume of 183 pages forms a most noteworthy contribution to our knowledge on the vascular circle of the genital tract. In this monograph for the first time is presented a complete and comprehensive description of the blood supply of the genital organs, and the utility of a proper understanding of these conditions in surgical interventions on the tractus genitalis is brought out forcibly. Most of the 117 illustrations are diagrammatic, and, therefore, illustrate very clearly the points the author wishes to emphasize. Very interesting are the x-ray pictures of injected specimens. This work compares favorably with the numerous previous publications of the writer which have gained for him a prominent place among modern anatomists.

Progressive Medicine, Vol. III, September, 1904. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 284 pages, 19 illustrations. Per annum, in four cloth-bound volumes, $9.00; in paper binding, $6.00, carriage paid to any address. Lea Brothers & Co., Publishers, Philadelphia and New York.

The September issue contains four divisions: Diseases of the thorax, dermatology obstetrics and nervous diseases. The work of the preceding year in these four important branches of medicine is summarized in well written critical articles.

Progressive medicine is so well known to the American profession that it would seem superfluous to repeat once more the recommendation to the practitioner to subscribe to this very valuable publication.

Dudley's Gynecology. New (4th) Edition. A Treatise on the Principles and Practice of Gynecology. By E. C. Dudley, A. M., M. D., Professor of Gynecology in the Northwestern University Medical School, Chicago. New (4th) edition. Revised and enlarged. Octavo, 771 pages, with 401 illustrations, of which 50 are in colors,

and 18 full-page colored plates. Cloth, $5.00 net; leather, $6.00 net; half morocco, $6.50 net.

Probably one of the most striking features of Dudley's well known text-book on gynecology was the clearness of a great number of illustrations representing the various steps of almost all the important gynecological operations. In this new edition all the borrowed engravings have been excluded, and more than three hundred new ones introduced, all reproduced from drawings specially made for this book. This innovation will, undoubtedly, further help to increase the large number of admirers of this work.

SANITARY INVESTIGATIONS OF THE ILLINOIS, MISSISSIPPI AND MISSOURI RIVERS, ETC. Illinois State Board of Health, 1901-1902.

This report is a very important addition to the volume published by the same board about a year ago. It consists of two parts, the first dealing with observations on the sewerage systems and water supplies of Chicago and St. Louis, and with sanitary investigations of the Illinois, Mississippi and Missouri rivers; while the second part contains a report of a chemical and bacterial examination of these three rivers. The material compiled in these reports is immense, and is worked up in a spirit that in scientific exactness and impartiality cannot be equaled. Everyone interested in the water problem will find valuable and reliable information in it.

ANNALI DELL' ISTITUTO MARAGLIANO PER LO STUDIO E LA CURA DELLA TUBERCULOSI. Publicati sotto la Direzione del Prof. E. Maragliano. Genova. Istituto per le Malattie Infettive. Nos. 1 and 2, 1904.

Maragliano is widely known for his work on the etiology and therapy of tuberculosis. Although his opinions vary in many respects from those usually entertained, and his enthusiasm often carries him too far, he will always be named with the foremost in the battle against tuberculosis. The most important part of his work lies in his attempts to procure a vaccination against the tuberculous infection. The results so far published by him are very promising and worthy of the most careful investigation. It is to be considered in this respect as a welcome enterprise tc send through the world these annali, modeled after the Annals de l'Institut Pasteur, in which the work done at his institute and under his supervision will be made accessible to a greater number of readers than was possible by publication in mostly Italian journals. There is no doubt that the annali will stimulate investigation of the points at issue in other countries, and either rise or fall with the results. The first two numbers contain a great amount of material which shows how busy the school in Genoa is.

TASCHENBUCH FUER DEN BAKTERIOLOGISCHEN PRAKTIKANTEN. Rudolph Abel, 8. Auflage-Wuerzburg. A. Stuber (C. Kabitzsch). 1904.

With the new additions and corrections the book will be as welcome in its eighth edition as the previous editions were at the time of their publication. The great value of the little compend has been emphasized in a previous number of this journal.

A TEXT-BOOK OF ALKALOIDAL THERAPEUTICS. Being a condensed resume of all available literature on the subject of the active principles added to the personal experience of the authors. By W. F. WAUGH, M. D., and W. C. ABBOTT, M. D., with the collaboration of E. M. EPSTEIN, M. D., Chicago. The Clinic Publishing Co. 1904. Cloth. 405 pages, interleaved. Price, $2.50.

It is generally recognized that the active principle is superior to the uncertain preparations of drugs usually prescribed, and yet the administration of the alkaloids is not practiced to the extent which the simplicity of preparation and certainty of action following administration would seem to inspire. This volume is, therefore, a welcome ad-

dition to the literature for those physicians who practice alkaloidal therapy because it gives a large fund of information concerning the active principles of many drugs not yet in general use in their alkaloidal form, and serves to enlarge the views of the many physicians who are interested in alkaloidal therapy, but have not adopted it entirely. About 150 different remedies are discussed and among them all the important alkaloids and also concentrations, resinoids and other preparations which may conveniently be included under the general title of "active principles."

Die Krankhafte Willensschwaeche. By F. C. R. Eschle, M. D. Fischer's Medicin., Buchhandlung, H. Kornfeld, Berlin. 1904.

The importance of the functions of the will in the so-called functional diseases of the nervous system has been recognized for a long time, but it is only in comparatively recent times that this fact has been used in a practical way therapeutically. The author of this monograph attempts to do this, and as a basis for his therapy he presents a consideration of the psychology of the will and also a scheme to explain its mechanism. This portion of the work is chiefly valuable for the use of the various theories that have been advanced toward this end. Considerations of this kind are, as a rule, very unsatisfactory for the reason that discussions of the will are mainly metaphysical in nature. To attempt to explain the will by the same sort of reasoning that we use in explaining a physical phenomona is always open to the objection that the will must be regarded at present simply as a function of the nervous mechanism and until we understand better than we do at present the nature of nervous activity in general then it is obvious that we will run into difficulties as soon as we attempt to explain a function of a mechanism that is practically unknown. It must uot be understood that the reviewer has any objection to such discussions as this is, but in a treatise so obviously meant for definite ends this purely philosophical part seems out of place. Under the title of therapeutic influence upon the disturbances of the will the author has three chapters, the hygienic therapy of the will and their relation to psychical therapy. The psychical therapy of disturbances of the will leading up to educational therapy and the education to work and the task and limits of the work therapy. It is to this latter that attention should be shown as it forms the best part of the book and likewise the most unusual part. We find here a recognition of the service which Gromann has done to this department of therapy and the application of his idea in the special problem at hand. It can be said of this book of Eschle's that it has a very useful place in the library of all neurologists, especially those who are interested in the growing tendency to make use of physiological methods in the treatment of functional nervous diseases.

Adolescence—Its Psycology. By G. Stanley Hall, PhD., LL.D. D. Appleton Company, New York. 1904. Vol. I and II.

It is difficult to give in a few words an adequate estimate of this comprehensive work. It represents the results of many years devoted to the requirement of facts and their interpretation upon a subject which has been singularly neglected by psychologists up to this time. It is also an example of a school of psychology of which the author is in a measure the originator, and certainly the foremost representative. The chief characteristic of this school is the utilization of vast arrays of facts collected by systematic observation of human beings in their normal environment and in their normal development as they are seen in schools, society, institutions, in play and in their every day experiences. The data thus collected is interpreted in the light of the author's own psychological system, which is as yet unpublished, and which in his preface he points out should have preceded the appearance of this work. Apart from its philosophical interest there are many things in these two volumes which are of deep interest to the physician who feels the need of a deeper knowledge into the workings of the mind of the adolescents who require his aid and for such there is no work which can fill the want in the way this one does. Attention might be called to the immense variety of information contained in these two volumes and to the largeness of view which has inspired the author in his effort to leave nothing untouched which might throw light on his subject Such important things as the adolescent girl from the point of view of higher education, the problem of college education for men, co-education, adolescent races, the crimes of adolescence and other subjects of a like nature which at first sight might seem to have little relation to psychology are here treated with the

keenest insight and the finest sense of their close connection to the subject. Finally, it must be admitted that this work is open to the serious objection which critics and particularly continental ones hold against the psychological methods of Stanley Hall, namely, that there is a grave danger in generalizing from data gotten together in this way. Such an objection, however, has no especial weight when the fact is considered that here there is collected a mass of important facts upon the adolescent period which is of paramount interest to the reader as facts. The interpretation of them and the generalizing from them may be based upon the peculiar psychology which Stanley Hall has made his own and thus be open to the criticism mentioned above, but to the physician concerned chiefly in the effort to obtain light upon the adolescent period these volumes are of surpassing importance. For this reason the book is worthy of careful reading and as a result there will follow a better understanding and a more careful consideration of the problems which find in adolescence their chief expression.

Clinical Lectures on Mental Diseases. By T. S. Clouston, M. D. Sixth Edition. Lea Brothers & Co., New York. 1904.

The sixth edition of this well-known text-book presents some changes which go to show that the author has felt the impulse of the objective tendency in psychiatry strongly enough to allow his own views to be affected. To Mott and Forbes Robertson, the author, in his preface, gives credit for strengthening this growing influence in respect to the investigations of the pathology of the central nervous system which by every a priori reasoning ought to underlie the clinical phenomona which are found in mental diseases.

After all, however, this treatise remains a clinical exposition of the subject and, however much Clouston may himself be inclined to accentuate the importance of pathology the chief merit of this edition, as is the case with the preceeding ones, lies in the clear description of actual clinical types. It is a questionable advantage to include in a treatise of this sort pictures of pathological preparations which are supposed to explain in part at any rate the resulting clinical picture so aptly described. Mental pathology does not at present exist and it is a safer course to face this gap in our knowledge rather than to give an undeserved weight to pathological appearances which cannot be regarded as constant or enlightening. For this reason the pathology strikes one as adventitious and dragged in as it were in order to make the book appear fully up to date. Outside of this surrender to the tendencies of the time the book may be said to be admirable as it represents the fruit of the clinical experience of one of the foremost English alienists who is fortunate in possessing in addition to his knowledge of his subject an English style that is very well adaptad to clinical description. The classification is as unsatisfactory as classifications in psychiary are at present likely to be and there are some new terms which are particularily the author's own. Psychalgia and psychlampsia as supplementary terms for melancholia and mania. This multiplication of terms is always regrettable. The author is apparently not especially interested in the controversy concerning dementia præcox. It is alluded to only as referring in rather a vague way to the katatonic form in Kraepelin's classification. The irritation which the continual repetition of the term states of depression states of excitement, etc., cause to the sensitive reader passes away as he is carried on by the accuracy and fidelity of the clinical descriptions. The book is in many respects a model text-book of insanity, especially adapted for the use of those who desire a clinical exposition of the various types of insanity unmixed with much of the discussion which has become so prevalent a part of some recent treatises on this subject. Clouston's work then should be in the hands of those interested in psychiatry because it is a good book and because it represents the development of English psychiatry along the lines of what at present must be regarded as the safest, that is careful clinical observance and description.

A Non-Surgical Treatise on Diseases of the Prostate Gland and Adnexa. By George Whitfield Overall, A. B., M. D. Rowe Publishing Co., 1312–34 East Washington street, Chicago.

The virtues of electricity (electrolysis and cataphoresis) as manipulated by the author are extolled in this work, while the usual surgical procedures are more or less arraigned.

THE SURGICAL TREATMENT OF BRIGHT'S DISEASE. By GEORGE M. EDEBOHLS. Frank F. Lisieck, Publisher, 9 to 15 Murray street, New York. 1904.

The thorough and complete way in which Dr. Edebohls presents his cases, and his logical reasoning and conscientious analysis of his results, will do much to impress one, not only with his enthusiasm but with the value of the operation promulgated in this volume.

The literature to date may be found here as well as a report of the operations done by the author.

But while the subject is most excellently covered, yet to agree with the authors's final conclusions that "the evidence submitted not alone justifies the surgical treatment of chronic Bright's disease, but establishes surgery as at present the main, if not the only, hope of sufferers from a hitherto incurable malady," will hardly meet the approval of the many workers in this field.

PROSTATIC HYPERTROPHY FROM EVERY SURGICAL STANDPOINT. By PHILLIPS. The Ajod Company, St. Louis, Mo.

This work contains the answers of forty authorities to certain questions propounded them in regard to prostatic hypertrophy.

HANDBUCH DER GEBURTSHILFE. In drei Baenden herausgegeben VON F. VON WINCKEL, Professor der Universitaet Muenchen. Verlag von J. F. Bergmann, Wiesbaden. 1904.

We had occasion in the April number of this journal to briefly outline the scope of this gigantic cyclopedia of obstetrics. Another book of 700 pages, which has just appeared, presents the second half of the first volume. Two more volumes of similar dimensions will complete the work. The second half of the first volume is devoted to two subjects: the physiology and therapy of pregnancy and labor. Among the collaborators of the new volume we find the names of many well known teachers of obstetrics, such as Bumm, Herff, Menge, Strassman, Skutsch and others. We can only repeat what we have said in praise of the first part of the volume. This work is a worthy monument of the admirable thoroughness of the German scientist. It claims our admiration and at the same time our envy.

GYNAEKOLOGIE. Fuer Aerzte und Studierende. VON DR. WILHELM NAGEL, Professor der Geburtshilfe der Universitaet in Berlin. Verlag der Fischer's medic. Buchhandlung. Berlin. W. Price $2.50. (G. E. Stechert, New York).

This is a short manual of gynecology. In looking over this neat volume one necessarily feels inclined to make a comparison with similar American publications. The difference is striking. Here we find most of the limited space devoted to a very careful consideration of the anatomy and pathology of the genital organs and to diagnosis. In order to condense the volume into the shape of a manual only, the more important of the gynecologic operations are briefly described, and we can only say that we heartily agree with this practice. The twenty-seven very good illustrations representing these operations are in the form of special tables separately appended at the end of the volume. In the main the ideas propounded by the writer are identical with those found in American text-books, although the tendency toward a more conservative therapeusis is very marked. It might prove of some advantage for many physicians practicing gynecology in this country, to read the chapters dealing with the use of the pessary, and on pelvic massage.

ANLEITUNG ZUR DIAGNOSE UND THERAPIE DER KEHLKOPF, NASEN UND OHRENKRANKHEITEN. Vorlesungen gehalten in Fortbildungscursen

fuer practische Aerzte, von Dr. Richard Kayser in Breslau. Dritte vermehrte und verbesserte Auflage. Mit 132 Abbildungen. Preis M. 4.80. Berlin 1905. Verlag Von S. Karger. (G. E. Stechert, New York.)

This work embodies a series of lectures which the author has given in his post-graduate courses and is intended as a guide for the student, and as a small work of reference for the general practitioner. The fact that it has reached its third edition in so short a time is ample evidence of its popularity. This edition has been thoroughly revised and much new matter has been added, so that the value of this little book has been greatly enhanced. It bears the distinction of being the first German publication of its kind to include the ear, nose and throat in one volume.

Health, Strength and Power. By Dudley Allen Sargent, A. M., Sc. D., M. D. Director of Hemenway Gymnasium, Harvard University. Illustrated. New York and Boston: H. M. Caldwell Co. 1904.

Dr. Sargent is qualified to give advice on the question of gymnastics and athletics; he has had an unparalleled chance to observe the results of physical education. He points out clearly in his book that the price we are paying for our boasted civilization, our labor-saving devices, in fact, our tendency to luxury, is becoming apparent in our physical make-ups. The problem we must face is to retain our characteristics as a physically strong race in spite of modern conditions. A certain amount of exercise is necessary and this must be coupled with right living. Dr. Sargent's book tells all this in an interesting way; it is valuable to the physician as well as to the layman. The exercises which he recommends are simple, without apparatus; and the illustrations show without further comment exactly what the author thinks necessary to maintain health, strength and power in youth, manhood and old age.

Toxicology. A Manual foe Students and Practitioners. By Edwin Welles Dwight. The Medical Epitome Series. Philadelphia and New York: Lea Bros. & Company.

The essentials of toxicology are given in a way adapted to the capacity of students and general practitioners. The diction of the text is concise, and the statements made based on the utilization of the latest works on the subject. The little work is a reliable guide for toxicologic questions, although, of course, it does not represent much of the theoretic problems involved in these questions.

The Practical Medicine Series of Year-Books, comprising ten volumes on the year's progress in medicine and surgery. Issued monthly. Edited by G. P. Head. Vol. IX. Chicago: The Year-Book Publishers. August, 1904.

This volume of the series, the previous ones of which were favorably commented upon in former issues of this journal, deals with the departments of anatomy and pathology, of physiologic bacteriology and of the dictionary of new words. The selection of the publications reviewed is again admirable; the reviews themselves are concise and representative of the work reviewed, so far as the writer can see from his own reading. Certain portions form a very valuable assistance for laboratory workers, consisting in the compilation of new methods and procedures, otherwise only accessible by searching in a number of publications. The series must again be brought to the attention of the practitioner as a reliable source of information on the progress of our science.

Diseases of the Nose, Throat and Ear, and their Accessory Cavities. By Seth Scott Bishop, M. D., D. C. L., L.L. D., Honorary President of the Faculty and Professor of Diseases of the Nose,

Throat and Ear in the Illinois Medical College. Third Edition Thoroughly Revised and Enlarged. Illustrated with 94 colored lithographs and 230 additional illustrations. Cloth; pp. 564. Price $4.00 net. Philadelphia: F. A. Davis Co.

The third edition of Bishop's well known book has been thoroughly revised and partly rearranged; much new matter has been introduced while a great deal of the obsolete has been omitted. The larger part has been devoted to the nose and throat, hence the change of title, though the ear has been given due attention. The literature has been carefully reviewed and frequent recognition and reference to the work of American writers is made by the author, a fact which the foreign authors too frequently overlook. In the preface to the first edition the author states that his book was designed to meet the demands of students and those general practitioners who wished to acquire proficiency to properly treat patients who were unable to visit specialists. His object has been admirably attained.

Therapeutique des Maladies de la peau, par le Dr. Leredde, directeur de l'Establissement Dermatologique de Paris; 1. volume avec figures dans le texte (Masson et Cie, Editeurs).

The first part of this work is devoted to general therapy and enumeration of the different methods employed in the external and internal treatment of skin diseases. The second part is devoted to special therapy. The author summarizes the special characteristics of the dermatoses, the necessary points in their diagnosis, and discusses the most practical methods of relieving their symptoms. The work is completed by the addition of a dermatologic formulary which should be of great service to those interested in the treatment of these diseases. There is a great need for such a book as this of Dr. Leredde's in English, one which will point out the best methods of treatment in a precise and practical way, giving the favorite applications of the author and his personal experiences in the treatment of this class of diseases. The modern text-books on diseases of the skin give a lot of formulas without sufficient remarks upon their action and indication. We would like to see Dr. Leredde's book translated into English.

Verhandlungen des Vereins Sueddeutscher Laryngologen. Herausgegeben im Auftraege des Vereins vom Schriftfuehrer Dr. Medd Georg Avellis, Frankfurt a. M. Preis M. 2.50. A. Stuber's Verlag (C. Kabitzsch). 1904.

This little volume contains the transactions of the meeting of the South German Laryngologists, at Heidelberg during May. A number of extremely interesting and valuable papers were read, notably one by Prof. Killian, "On the Radical Operation for Chronic Empyema of the Antrum of Highmore." The author concurs with Luc that the best results are obtained in this operation when a large communication is made between the antrum and the nose below the inferior turbinate. The minutest details of this operation as performed by Prof. Killian are given, with a discussion by the members present, making this a very valuable publication.

Blood-Pressure, as Affecting Heart, Brain, Kidneys and General Circulation. By Louis Fangeres Bishop, M. D. New York: E. B. Treat & Co. 1904.

This little volume of 112 pages discusses in a very general fashion the problems of high and low blood-pressure from a clinical point of view. It reads as if it had been made up from a number of journal articles rather hastily thrown together, and, indeed, in the last chapters the author occasionally quotes at considerable length from his previous publications. The technique of blood pressure measurement is not included in the scope of the book.

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